THE ROLE OF CONVENTIONAL INTERCONTINENTAL BALLISTIC MISSILES IN UNITED STATES MILITARY STRATEGY

A Thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

By

RICHARD M. PATENAUDE, MAJOR, USAF
B.A., Pennsylvania State University, Pennsylvania, 1980

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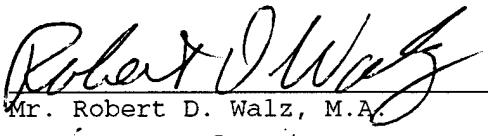
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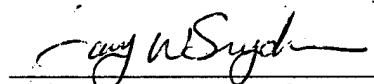
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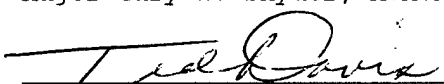
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ABSTRACT

THE ROLE OF CONVENTIONAL INTERCONTINENTAL BALLISTIC MISSILES IN UNITED STATES MILITARY STRATEGY by Major Richard M. Patenaude, USAF, 91 pages.

This study explores the role of conventional intercontinental ballistic missiles (CICBM) in United States military strategy and finds potential roles for CICBMs in three areas: conventional deterrence, operations other than war (OOTW), and fighting major regional conflicts (MRC).

Conventional deterrence is the concept of deterring conventional warfare without using weapons of mass destruction as part of the threat. CICBMs are accurate, unmanned, and unaffected by weather, time of day, or enemy defenses. CICBMs would make a significant contribution to the United States ability to rapidly bring force to bear on the enemy.

Army doctrine lists thirteen OOTW activities. CICBMs could have a role in six. They are: show of force, humanitarian assistance and disaster relief, arms control, combating terrorism, peace enforcement, and attacks and raids. Using CICBMs would constitute an "attack," but the attack could support one of the other five activities.

MRCs are the near-term future strategy and CICBMs have a clear role. CICBMs do not require deployment to theater and are not affected by the theater battlefield environment. The value of CICBMs is enhanced when fighting two nearly-simultaneous MRCs.

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

ATACMS	Army Tactical Missile System
BUR	Bottom-Up Review
CEP	Circular Error Probable
CICBM	Conventional Intercontinental Ballistic Missile
FM	Field Manual
ICBM	Intercontinental Ballistic Missile
LGB	Laser Guided Bomb
MRC	Major Regional Conflict
NATO	North Atlantic Treaty Organization
NEV	National Elements of Value
OOTW	Operations Other Than War
TLAM	Tomahawk Land Attack Missile

CHAPTER ONE

INTRODUCTION

Background

In the summer of 1993, an article appeared in Airpower Journal, the professional journal of the United States Air Force, entitled "The Ultimate Standoff Weapon." In the article, Lieutenant Colonel John London explored the idea of an intercontinental ballistic missile (ICBM) with a conventional payload.[1] It was the first time many Air Force professionals had ever heard of a conventionally armed ICBM. The Air Force ICBM community, however, had been developing the concept for at least three years. The idea of a conventional ICBM (CICBM) surfaced as a result of new technologies, new environments, and new strategies, driven in part by the Gulf War.

New Technologies

The United States indeed has the capability to build highly accurate, conventionally armed ICBMs. But, the role for such a weapon is as yet undefined. Earlier this century, military professionals were likewise faced with a new weapon system--the airplane. Like the CICBM, the airplane was unlike any weapon used or considered in the past. Unlike the CICBM, the military could buy a few airplanes, fly them, and decide how to use them later. Today's military cannot afford to buy CICBMs without a specific purpose clearly defined. Before the military invests, they must know what the CICBM's role will be.

This study will attempt to answer the question: Is there a role for conventionally armed ICBMs in United States military strategy? The answer to that question lies in three subordinate questions. (1) Is there a role for CICBMs in conventional deterrence? (2) Is there a role for CICBMs in operations other than war? And (3) Is there a role for CICBMs in a fighting a major regional conflict (MRC)?

The skeptic will charge that Air Force missileers are just looking for a way to keep their jobs amidst force cutbacks and limited budgets. Perhaps so, but if they are, that is only natural. More to the point, the ICBM community is applying its specific expertise to the current world environment. They would be remiss if they did not look beyond the strategic nuclear capability of ICBMs and try to apply their training, their knowledge, and an effective weapon system to the current needs of the nation.

The Air Force will soon have 450 perfectly good spare rocket engines. President Bush eliminated the Minuteman II alert commitment in 1990 as a goodwill gesture to the Soviet Union. The START II treaty also requires Minuteman II stand-down. As a result, the Air Force is in the process of removing the 450 Minuteman II missiles from silos in Missouri, South Dakota, and Montana. What can be done with these rocket engines?

Can the Minuteman II rocket engines be used to launch satellites? No, a solid fuel rocket engine is poorly suited for launching satellites. Solid fuel is ideal for maintaining constant readiness and quick reaction, both important for nuclear deterrence;

but, the vibration and acceleration during the rapid liftoff is punishing on the relatively fragile satellite payloads.

If, on the other hand, the Air Force changes the nuclear warhead to a conventional weapon, the Minuteman II rocket engine remains ideal. Add a new guidance package to increase accuracy, position the missiles on each coast, and suddenly, the Air Force has a conventional response to any world crises within minutes without a completely new design.

Lieutenant Colonel London's concept for the CICBM does require a completely new design. It does not reuse existing engines. Lieutenant Colonel London wants the Air Force to build a liquid-fuel rocket that emphasizes simplicity and lower cost. Many of the advanced features of Minuteman missiles are unnecessary for conventional weapons delivery systems. Lieutenant Colonel London argues that designers must shed the old nuclear missile paradigms. Maxims that guided missile design and development for nuclear weapons on 24-hour alert do not apply to the CICBM concept. CICBMs require a new way of thinking. Lieutenant Colonel London agreed that, just as with the Minuteman II proposal, the Air Force must develop new guidance systems and new payloads.[1]

New guidance systems would have to greatly improve accuracy. Strategic nuclear ICBMs could launch from the heart of the continental United States and strike anywhere in the Soviet Union with accuracy measured in hundreds of meters. That kind of precision was adequate for nuclear weapons but not for conventional weapons. However, new technologies make it possible for ICBMs to achieve the increased accuracy required for the much lower yield of conventional warheads. A

Department of Defense study in 1988 found that accuracy of approximately 15 meters could be achieved independent of range, in all weather conditions, 24 hours a day, for relatively low cost.[2] Today's Air Force proposals conclude that the technology exists for a circular error probable (CEP) of 10 meters.[3]

Conventional payloads would vary according to the mission. ICBM experts in the Air Force and defense industry foresee a payload of approximately 1,500 pounds if reusing Minuteman II rocket engines.[4] The actual payload weight is limited only by the size of the booster. The munitions could be single high-explosive bombs, clusters munitions, earth penetrators, or simply kinetic energy projectiles.

The focus in evaluating CICBMs, however, should be on the mode of delivery--intercontinental missiles. Precise payloads and accuracy are not central to the discussion. Technological advancements in both areas are constant and can be incorporated throughout a weapon system's lifetime.

New Environment

In the end, a CICBM, with either liquid fuel or solid fuel, would have many attributes. It could deliver its payload to any target worldwide in approximately 30 minutes. The payload could vary according to the mission. The payload could strike within approximately 10 meters of the desired target. Since the weapon travels exoatmospherically (outside the atmosphere), there would be no overflight restrictions. No servicemen would be placed in harms way. The CICBM could hold any target in the world at risk without deployment.

That last attribute, "hold any target in the world at risk without deployment," is a key to understanding why CICBMs are being considered now. Our environment is changed drastically from that of only a few years ago. The old bi-polar world is gone and with it the single, ominous Soviet threat. Today, the United States is faced with the possibility of an MRC occurring at anytime, in any part of the world.

In January 1994, the Secretary of Defense presented his annual report to the President and the Congress. In it the Secretary cited four general dangers in the post-Soviet environment. One of the four was regional aggression. Though a traditional national security threat, regional aggression is now more diverse and is viewed with greater uncertainty. The Secretary declared the United States must be prepared to fight and win not just one, but two nearly simultaneous MRCs.[5]

Another of the four dangers in the Secretary's report was that of our national economy. The United States economy had to remain strong, competitive, and growing. The United States had to spend limited budgets with greater care. United States citizens will not support unlimited military spending. The government must cut military forces and budgets and realize a "peace dividend."

In an effort to save money, forces were pulled back to the United States. Army divisions, air wings, and naval task forces in every part of the world were no longer affordable. The United States military would now have to deploy to regional trouble spots when necessary. Force projection became the new buzz word. Projecting

military power anywhere in the world at anytime from predominately continental United States bases was now standard operating procedure.

New Strategy

Another reason why CICBMs are now being considered is strategy. Lieutenant General Buster C. Glosson, the director of campaign plans for United States Air Forces Central Command during the Gulf War, wrote in 1993:

> A number of pivotal lessons came from Operation Desert Storm, but few were as important to our profession as the potential of stealth and precision guided weapons...they maximize our combat capability by permitting us to hold any target in a country at risk while minimizing the costs--both in lives and dollars.[6]

Here, Lieutenant General Glosson espouses two strategy imperatives for the future: hold any target at risk and minimize cost.

One tool to achieve those imperatives is the standoff weapon. Generally, standoff weapons are weapons launched from a platform outside the enemy's reach, to strike an enemy target. The Tomahawk cruise missiles, launched from Naval ships operating in the Persian Gulf and targeted for command and control facilities in downtown Baghdad, are an example of standoff weapons. Minuteman III missiles, launched from the central United States to targets within Russia and other countries, can also be considered standoff weapons. Neither system puts U.S. servicemen at direct risk as they are unmanned.

Given these three factors--new technologies, a changing environment, and new strategies--it was inevitable that someone propose putting conventional weapons on ICBMs. A CICBM could be based here in the United States and reach anywhere in the world within minutes. It

could be accurate. It would not risk American lives. It could penetrate enemy air defenses. (The United States is the world's most sophisticated military power and even it has no defense against ICBMs.) The question is, given the military hardware the United States already possesses, is there a role for CICBMs if the United States builds them?

Assumptions

To determine whether there is a role for CICBMs, this study will make the following five assumptions: First, the United States can build CICBMs cheaply enough to buy several hundred. Second, CICBMs will have a circular error probable of at least 10 meters. Third, the payload from ICBMs launched from within the United States will be able to strike any target in the world and weigh at least 1,500 pounds. Fourth, a process would exist that would allow the United States to notify and arrest the fears of nontargeted countries when CICBMs are used; this is especially important for those nations with the ability to detect ICBM launches and respond in kind. And fifth, international law and United States treaties have a wide enough interpretation to allow the use of conventionally armed ICBMs.

Definitions

Mission

Roles and missions are not synonymous. For the purposes of this paper, a mission is described in terms of a desired end state. For example, the mission of nuclear ICBMs is deterrence and, should deterrence fail, to defeat the enemy.

Role

A role, on the other hand, is a specific task designed to achieve a mission. The role of nuclear ICBMs in accomplishing the deterrence mission is to remain on constant alert, ready to launch. The role of ICBMs to achieve the defeat of an enemy is to launch quickly and strike specific enemy targets assigned by United States Strategic Command in concert with the other two legs of the strategic triad.

Deployment

For the purposes of this study, deployment means to move equipment and personnel from one location to another. A typical deployment was sending F-15 fighters from Langley Air Force Base, Virginia, to Saudi Arabia during Desert Shield. Deployment puts the weapon system and personnel in theater or within range of where they will be used.

Circular Error Probable (CEP)

Missile accuracy is stated in terms of CEP. The CEP is a radius from a specified target within which 50 percent of the missile's reentry vehicles will hit. Or, the radius within which a single reentry vehicle will hit 50 percent of the time.

Limitations and Delimitations

This study is concerned with the possible roles or specific tasks that a CICBM could assume within existing missions assigned to the United States military. Possible roles may be new or reassigned from other, less suitable weapon systems in an effort to free those weapons systems to accomplish other roles.

To allow wide dissemination and consultation, this thesis will remain unclassified. Research will be accomplished using only unclassified sources.

This study will not discuss present or future reentry vehicle accuracy capabilities outside the assumption already stated.

This study will not address cost effectiveness of using CICBMs versus other weapons. A study of cost effectiveness would require an accurate estimate of the cost of a CICBM. An accurate CICBM cost estimate depends on rocket engine design, guidance system design, basing mode, and method of operation just to name a few of the variables. None of this information is available.

Significance

The ICBM community should find this study useful. CICBMs are being discussed and investigated by Headquarters, United States Air Force and Headquarters, Air Force Space Command. The United States aerospace industry is researching options to reduce cost, increase accuracy, and attain worldwide target capability for CICBM reentry vehicles. (Worldwide coverage, or the ability to strike any target in the world, is not just a matter of the weapon's range in miles. Several other factors, such as reentry angles, launch sites, and launch safety corridors affect a warhead's ability to strike intended targets.) The military community must make every effort to fully understand how CICBMs could be used in order to give focus to the ongoing discussion and research. This thesis will contribute largely to understanding the role of CICBMs and help provide focus.

Literature Review

Very little is written about CICBMs as a weapon system. In his Airpower Journal article, Lieutenant Colonel London cautioned the reader that the old maxims that guided missile design and development for nuclear weapons did not apply to the CICBM concept. CICBMs required a new way of thinking.[7] That new way of thinking applies to developing CICBM roles and strategies too. Much has been written about roles and strategies for which the CICBM may be well suited. Articles, studies, and books abound on conventional deterrence, standoff weapons, and past and future strategies.

Conventional Deterrence

In 1966, in a book titled Arms and Influence, Thomas C. Schelling beautifully explained the difference between a nation's defense and its deterrent power. He wrote:

> There is a difference between taking what you want and making someone give it to you, between fending off assault and making someone afraid to assault you, between holding what people are trying to take and making them afraid to take it, between losing what someone can forcibly take and giving it up to avoid risk or damage. It is the difference between defense and deterrence, between brute force and intimidation, between conquest and blackmail, between action and threats.[8]

Deterrence then, is causing someone not to do something without physically forcing or restraining him. A deterred actor perceives the cost of acting as too high compared to the rewards or benefits of acting.

John J. Mearsheimer wrote there are two ways to deter: punishment and denial. Punishment is threatening to destroy large portions of an opponent's civilian population and industry. Denial is

convincing the opponent that they cannot attain their goals on the battlefield.[9]

Mearsheimer funneled all the writing on conventional deterrence into three distinct theories. One theory concentrates on the types of weapons processed by the potential attacker and the potential defender. The premise is that all weapons are either offensive or defensive and at any one time, one type of weapon will have the upper hand. The theory is that when defensive weapons prevail, deterrence succeeds; when offensive weapons prevail, deterrence fails.

The second theory is based on the balance of forces. The theory is that if the potential attacker (for example, North Korea) has superior quantities of soldiers and weapons, he will attack and thus the United States' attempt to deter fails. And, if the potential attacker has fewer soldiers and weapons, he will refrain from attacking and thus the United States' attempt to deter succeeds.

The third theory was developed by Mearsheimer to answer his perceived shortcomings in the other two theories. Mearsheimer argues that "deterrence is a direct function of specific military strategies."[10] The likelihood of successful deterrence depends on the potential attacker's desired outcome and method. A strategy of surprise that is quick with limited objectives, Iraq attacking Kuwait for example, is difficult to deter. On the other hand, a strategy that requires a protracted war of attrition and has ambitious goals, North Korea attacking South Korea for example, is easier to deter. The key to this theory is that strategy can change the cost-to-risk ratio.

In his theory, Mearsheimer includes the previous two--weapon type and numerical superiority--and adds desired outcome and method. A strategy is the sum of ends, ways, and means. In this case, the means are the weapons and number of forces. The ways are the methods of achieving the goal (attrition, blitzkrieg, etc.). The ends are the goals or objectives (a limited strip of land or annihilation of an entire country).

Not everyone, though, agrees that conventional weapons can deter at all. In the same issue of Airpower Journal that contained Lieutenant Colonel London's article, an article by Air Force Major William Huggins appeared arguing that conventional weapons will not deter aggression because "one cannot count on the mere threat of conventional war to raise the stakes in a conflict to levels high enough to forestall the outbreak of hostilities with anywhere near the confidence associated with nuclear weapons."[11]

Gary L. Guertner, Director of Research, Strategic Studies Institute, United States Army War College disagrees. Dr. Guertner gives a threefold response to critics of conventional deterrence who claim history has demonstrated its impotence:

> First, conditions now exist in which the technological advantages of American conventional weapons and doctrine are so superior to the capabilities of all conceivable adversaries that their deterrence value against direct threats to U.S. interests is higher than at any period in American history. Second, technological superiority and operational doctrine allow many capabilities previously monopolized by nuclear strategy to be readily transferred to conventional forces. Third, critics of conventional deterrence have traditionally set impossible standards for success.[12]

In that last point, Dr. Guertner maintains that sometimes conventional deterrence fails, but this only serves to rejuvenate

deterrence as the cost of aggression is once again demonstrated. He claims that all methods of deterrence will wear out eventually and that pointing to specific failures does not diminish the successes. The best that can be hoped for, when employing conventional deterrence, are long periods of stability with minimum interruptions.

Obviously, nuclear deterrence worked during the cold war. But, in his study Deterrence and Conventional Military Forces, Dr. Guertner points out that deterrence and nuclear weapons became synonymous only because the cold war and nuclear weapons emerged simultaneously. Deterrence, he adds, was always a mix of nuclear and conventional forces. Dr. Guertner believes that conventional forces, with a coherent post-cold war military strategy, can provide credible deterrence against new threats to American interests.

This study agrees that conventional deterrence is possible. It will argue that deterrence is really a cost-benefit analyses by the potential aggressor. Finally, this study will attempt to discover the potential contributions the CICBM offers to that cost-benefit analysis.

Standoff Weapons

In 1988 the Offense-Defense Working Group for the Commission on Integrated Long Term Strategy created a panel to study Standoff Weapons. The panel's findings are contained in a paper entitled "Extended-Range Conventional Weapon Systems." They concluded:

> Extended-range smart weapon systems have the potential to make a major contribution to stopping--and thus deterring--Soviet attacks, not only in NATO's central region, but in Southwest Asia and other areas as well.[13]

One of the panel's four recommendations at the end of the paper was for the military to conduct comprehensive studies of inventory requirements and investment alternatives. Further, the panel recommended the studies should address synergism and trade-offs among battlefield missions, multiple delivery means, and classes of weapons.[14]

The panel's recommendations are an open invitation to introduce new concepts like the CICBM. Though the panel did not specifically address CICBMs, it did address ground based launchers (specifically the Army Tactical Missile System and derivatives) and long-range strategic weapon systems (specifically long-range bombers). Much of the panel's work and conclusions can guide the development of possible roles for CICBMs.

The Navy's standoff weapon system for inland targets is the Tomahawk land-attack missile (TLAM). TLAMs are carried aboard a variety of surface and subsurface vessels. They are accurate and unmanned, and were proven in combat during the Gulf War. They are, however, vulnerable.

Two years ago, Rear Admiral (Retired) Walter Locke, wrote a short scenario that highlighted one of the TLAMs vulnerabilities. In his scenario, a potential aggressor is held at bay by the presence of United States Naval warships carrying 200 TLAMs. The aggressor decides to eliminate the threat by eliminating the ships. The aggressor strikes first with Harpoon and Soviet-made anti-ship missiles, destroys the ships, and thus the TLAMs. The scenario was intended to demonstrate the need for Tomahawk anti-ship missiles so ships could better defend

themselves, but it also demonstrated a weakness of TLAMs. That weakness is the very ships that launch them.[15]

The Navy's solution to the vulnerability of surface ships is subsurface boats. Submarines can operate in waters where the risk to surface ships is too high. Submarines can get into attack positions without alerting the enemy and be the leading edge of the attack. TLAMs on submarines can threaten 75 percent of earth's land mass. Last year, Rear Admiral Roger F. Bacon, Assistant Chief of Naval Operations for Undersea Warfare, quoted his submarine skippers as asking, "Why are we deploying with so many torpedoes? We need more Tomahawk cruise missiles."[16]

Robert A. Lynch, the engineering director for the Navy's Tomahawk cruise missile program from 1972 to 1979, came close to promoting intercontinental-range standoff weapons. In a U.S. Naval Institute Proceedings article about future Navy cruise missiles, Lynch called for development of a cruise missile carrying a 3,000-pound, multi-warhead payload with a range of over 2,000 nautical miles. He proposed that the new cruise missile not be restricted by size. One major advantage to a larger missile that can strike multiple targets, he wrote, is greater cost effectiveness.[17] The real difference between what Lynch suggests and the CICBM is the CICBM travels faster through space and the cruise missile travels slower over the terrain.

Past and Future Strategies

Eldorado Canyon

In operation Eldorado Canyon, the raid on Libya, F-111 aircraft and crews were hampered by overflight restrictions, multiple refuelings, and long flight times before reaching their targets.[18] In April 1986, The Wall Street Journal reported five of the eighteen F-111s from Lakenheath, England, turned around at Tripoli due to mechanical failures. (The failures prevented weapons release due to the restrictive rules of engagement that demanded accuracy. Physically, the aircraft could have continued.) The Journal went on to report that the military used over 100 aircraft for the 13 minute raid. Responding to these events, Senator Sam Nunn, then a ranking member of the Senate Armed Services Committee, said that bombers equipped with standoff weapons or missiles fired from a distance would have significantly lessened the risk. Senator Nunn pointed out that "standoff munitions would have helped a great deal. We could have had more target options. As it was, we exposed our pilots and our planes to more danger."[19] Lieutenant Colonel London, in his article "The Ultimate Standoff Weapon," cites the Libya raid as the perfect scenario for CICBMs.

Desert Storm

The Desert Storm air campaign started very early in the morning on 17 January 1991. At 2:37 am, TLAMs, aimed at nuclear and chemical weapons facilities, surface-to-air missile sites, and command and control facilities, began striking their targets. Fifteen percent of the missiles missed.[20] At about the same time, F-117s struck air

defense sites and communications centers. The first attack on Baghdad, the heavily defended capital city of Iraq, by a manned weapon system, was by F-117s at 3:00 am. Throughout the campaign, the only weapons to attack Baghdad were F-117s and TLAMs. These attacks, along with an AH-64 Apache Helicopter operation against two critical air defense radar sites west of Baghdad, opened the door to the 40-day air assault that followed.[21]

In an article called "Offensive Air Operations: Lessons for the Future," General Charles Horner, the Joint Force Air Component Commander during Desert Storm, discussed the lessons learned from the Gulf War. He brought out the same future strategy imperatives emphasized by Lieutenant General Glosson: hold any target at risk and minimize cost. General Horner wrote that stealth aircraft flew into the enemy's most heavily defended areas again and again and never suffered a scratch. According to General Horner, "it proves the value of stealth in operations."[22]

Additionally, General Horner made it clear that before the campaign started, President Bush instilled in the United States military commanders a strong concern for loss of life.[23] One possible role for CICBMs is attacking critical targets in heavily defended areas--a role now assumed by the F-117 fighter and the Tomahawk cruise missile. But, both the F-117 and the Tomahawk have vulnerabilities that will be discussed in Chapter Two.

Third Wave Warfare

Third Wave warfare is based on the theories and writings of Alvin and Hiedi Toffler. In 1980, the Tofflers wrote a book called The Third Wave. The authors argued the world was entering the Third Wave of change. The First Wave was the agricultural revolution started 10,000 years ago. Three hundred years ago the industrial revolution or Second Wave started. Now, the Third Wave, or information age was beginning.[24]

First Wave warfare reflected the environment. Wars were fought over surplus food and goods. They tended to be seasonal as the overwhelming majority of the people were needed to work the land. The organizations and reward systems all related to agrarian societies.[25]

Second Wave warfare also reflected the environment. Mass production led to mass quantities of war making machines. Wars were won with brute force. Second Wave warfare peaked with the Cold War nuclear standoff.[26]

Third Wave warfare is information or knowledge warfare. Brain force takes over for brute force. The Third Wave is an arena that relies heavily on advanced technology, such as instant worldwide command, control, communications networks; precision-guided munitions; and advanced intelligence capabilities.

In fighting a Third Wave war, the targets are new. Mass attacks on enemy war machines are out. Targets like electronic infrastructures are in. The goal is to decapitate the enemy, to sever the brain from the limbs.[27]

One step further is knowledge warfare. Knowledge warfare goes beyond targeting enemy radar, computers, intelligence centers, and

command bunkers. By altering an enemy's information flow and the intelligence, it is possible to control or at least influence the enemy's actions. If the theory is correct and properly implemented, one side can deliver a "KNOCKOUT PUNCH before the outbreak of traditional hostilities."[28]

Strategic Paralysis

Another new strategy for fighting in future conflicts, and one that fits in well with Third Wave warfare, is strategic paralysis. Strategic paralysis calls for precise aerial attacks against an enemy's most vital targets, called national elements of value (NEV), to paralyze his ability to continue the conflict and perhaps even break his will to do so. The idea is to end a conflict with the lowest cost to life and machine.[29]

NEVs are the sources of strength for a country and, therefore, the targets of strategic paralysis. Proponents postulate that there are seven NEVs: leadership, industry, armed forces, population, transportation, communications, and alliances. According to strategic paralysis, the elimination of one destabilizes the others, and the neutralization of the correct combination induces paralysis.[30]

Successful employment of strategic paralysis requires four things: aerospace control, technology (specifically weapons technology), vulnerable infrastructure, and vital targets. Diminishment of any one element could adversely affect a country's ability to invoke this strategy. If an enemy can defend against an attacker's precision weapons, if an enemy can restrict an attacker's use of airspace, if an

enemy does not have a vulnerable infrastructure, or if the attacker is unable to identify and locate vital enemy targets, then the attacker cannot paralyze the enemy.[31] Therefore, improvements in the United States' ability to strike targets with precision and with impunity will aid employment of the cost saving, life saving strategy (if valid) of strategic paralysis.

Research Design

This study will use a pyramid of questions to focus the research. Under the primary question are three secondary questions. If the answer to any one of the three secondary questions is yes, then the answer to the primary question will be yes. Two or more affirmative answers to secondary questions would strengthen the yes to the primary question.

Each secondary question will be addressed independently and in the following order. First, is there a role for CICBMs in conventional deterrence? To answer that question, a number of tertiary questions must be answered. What is deterrence? What is conventional deterrence? Does the United States have conventional deterrence now? What does the United States use to achieve conventional deterrence? Are there any gaps in the United States' ability to conventionally deter? What new or additional capabilities would the CICBM bring to conventional deterrence? Are the deterrent capabilities offered by the CICBM needed?

Second is the question of operations other than war. Using case studies past and postulated, this study will answer the following more basic questions, each one adding to the previous one. What are

operations other than war? Which of those operations can involve the use of offensive military force? Of those that could involve force, how is force used? What is an example of military force in operations other than war? What could the CICBM contribute in that example?

Finally, this study will address the possible warfighting roles of CICBMs. Specifically, is there a role for CICBMs in fighting an MRC? This study will look at possible roles in Desert Storm and answer the following tertiary questions. What is an MRC? What strategy does the United States employ to fight an MRC? What CICBM attributes are applicable to war fighting? How would those attributes contribute to the fighting an MRC? How would the CICBMs contribute to the theory of Information Warfare? How would CICBMs contribute to the theory of strategic paralysis?

In each case, a judgment must be made, based on the answers to the tertiary questions, to answer the secondary questions. As the primary question is directly tied to the yes/no answers to the secondary questions, the key to the thesis is the jump from the tertiary questions to the secondary questions. For example, if one concludes that CICBMs do have a role in conventional deterrence (secondary question), then one must conclude that CICBMs have a role in United States military strategy (the primary question). But, the decision as to whether or not the CICBM has a conventional deterrent role will be based on the assessment of the answers to the specific questions concerning conventional deterrence theory, CICBM capabilities, present day gaps, etc. Therefore, the strength of the thesis rides on the strength of the assessment of the tertiary questions and the conclusions drawn.

CHAPTER TWO

THE ROLE OF CONVENTIONAL INTERCONTINENTAL BALLISTIC MISSILES IN CONVENTIONAL DETERRENCE

The first step in identifying the role of the CICBM in overall United States military strategy is to determine how the CICBM would contribute to the conventional deterrence threat already projected by the United States. As a road map to that determination, one must first understand deterrence and conventional deterrence. Then, one must determine what deterrent capability the Unites States has and does not have. Finally, one must determine the deterrent capability of the CICBM and how that fits with the United States' deterrent needs.

Deterrence

Deterrence is the process of discouraging a party from behaving in a predicted way or from taking a certain action. The goal is prevention. It is a negative force. Thomas Schelling linked the words intimidation, blackmail, and threats with deterrence.[1] However, such a straight forward definition of deterrence is too vague, too simple, and too insipid to enhance understanding.

Admittedly, one does not have to understand deterrence in order to practice it. Wild animals deter other wild animals by instinct. Nuclear weapons deterred nuclear war starting in the early 1950s. Attempts to explain and define deterrence came later. Bernard Brodie wrote Strategy in the Missile Age in 1959.[2] Glenn Snyder wrote

Deterrence and Defense: Toward a Theory of National Security in 1961.[3] Thomas C. Schelling wrote Arms and Influences in 1966.[4] In fact, the writings arose from a desire to explain what was already taking place. So closely were nuclear weapons and deterrence linked that nuclear weapons and deterrence became practically synonymous.[5]

However, in order to evaluate the deterrent capability of a particular weapon system, such as the CICBM, one must understand how deterrence works or better yet, what makes deterrence work. While all the elements of deterrence are not universally agreed upon, the basic deterrent equation is. Deterrence comes from the potential aggressor's analysis of costs and benefits.

The Deterrent Equations

There are two deterrent equations that must be understood in order to evaluate how a new weapon system contributes to deterrence. The first deterrent equation is the cost-benefit analysis--more precisely, the costs of acting as compared to the benefits of acting. The second deterrent equation is the threat equation--the sum of a nations combat power, its will to use force, and its ability to bring force to bear. This equation is used to determine the "costs" variable in the cost-benefit analysis (the first deterrent equation, see figure).

Cost-Benefit Analysis

Whether or not a potential aggressor acts depends on the outcome of his cost-benefit analysis. If, in the eyes of the actor, the benefits are sufficiently greater than the costs, he acts and therefore deterrence fails. If, on the other hand, the costs outweigh the

potential benefits, the actor does not act and deterrence succeeds. The specific weights or values the actor places on the costs and benefits when conducting the analysis depend on his particular values.

Value System

Every cost-benefit analysis takes place under the umbrella of a value system. The deterred person believes the price of acting is too high when compared to the benefits of acting given his own set of values. The United States places a high value on individual life and freedom. In China for example, the higher value is placed on the group and the individual's responsibility to the group. Value systems are particularly important for deterrent cost-benefit analysis because the measurement devices for the costs and the benefits are often not the same. For a given scenario, the cost may be measured in lives while the benefits are measured in political influence.

For a potential actor, the cost-benefit analysis that creates deterrence is continuous. Within a given value system, as long as the perceived costs and the benefits remain the same, deterrence remains constant. A change to the value system could easily cause deterrence to fail or be strengthened. Deterrent methods that seek to change value systems are difficult to measure. Therefore, this thesis will not explore possible changes to values systems that could be brought about by CICBMs.

The Benefits Factor

Benefits are based on an actor's particular objectives and are easily measured in terms of money, territory, political influence,

survival, and so on. Any change in an actor's objectives can directly affect the benefits of acting. The resultant change in the measured benefits tilts the scales one way or the other, toward deterrent success or deterrent failure.

Three examples using North and South Korea will help clarify this point. If the North Korean ruler believes the allied powers will defend South Korea and enforce the existing border along the 38th parallel, he will not attack South Korea as long as his objective is measured in terms of acquiring new territory. If, however, his objective is to unite the North Korean people against a common enemy (external threat) in order to divert attention from divisive political movements (internal threat), then he may well attack South Korea on any pretense. In this case he knows he will lose the military campaign, but even in defeat he may achieve his true, hidden objective--internal unification. Finally, if the North Korean ruler believes the allied powers will not only defend South Korea, but have the capability and will exploit the opportunity to destroy North Korea and eliminate it as a nation, then he will not attack under any circumstances. No benefit can outweigh the cost of losing the nation's survival.

The Cost Factor

The second part of the cost-benefit analysis is cost. Cost can be measured in terms of life, territory, infrastructure, and so on. Cost is largely a matter of the threat, and any change in threat can change the costs. A change in costs can also tilt the scales toward acting or not acting. For example, in 1990 the threat presented by

Kuwait to deter Iraq's aggression was small. Today, however, Kuwait's deterrent threat, bolstered by the United States is quite formidable.

The Threat Equation

The second deterrent equation is the threat equation. Three ingredients combine to create the threat equation: combat power, the will to use force, and the ability to bring force to bear. (Or, Power + Will + Ability = Threat.) Take away any one ingredient and deterrence fails. Diminish any one ingredient and deterrence is diminished.

Few doubt the United States has the military power to defeat North Korea in combat; but unless North Korea is convinced that the United States will use its military power to the extent necessary to defend South Korea, deterrence is not achieved. Likewise, given that the United States has the power and the will to defeat North Korea, deterrence will again fail if that power cannot be brought to bear quickly and decisively on North Korean forces. If North Korea could defeat allied forces in South Korea and unite the entire peninsula before the United States military could fully react, North Korea might attack. In this last case, North Korea would be taking the chance that the United States would not have the will to launch a full-scale invasion just to restore South Korea.

The potential aggressor must measure each component of threat: combat power, will, and ability. Combat power is destructive power. It is measured by the amount of ammunition (e.g., bullets, shells, and bombs), the number of delivery systems (e.g., rifles, artillery tubes, and aircraft), and the personnel (e.g., number of operators, number of

maintainers, and level of proficiency). Will is measured less precisely. It is more a probability based on the deterrer's past actions and current pronouncements. The final variable, ability, is measured by the position of the force (e.g., forward based or home based and active duty or reserve component), the transport capability (e.g., trucks, ships, and airplanes) and the delivery capability (e.g., system accuracy and likelihood of penetrating enemy defenses).

Perception

A key to both deterrent equations is perception. Truth and reality are important only in as much as they contribute to the perception of the costs or the benefits. Whether or not the United States can actually defend South Korea successfully is not as important as the North Koreans' perception of the United States' capability. Deception can be applied to any of the cost ingredients in order to effect a higher perception of costs. However, for a specific weapon system, it is better to clearly demonstrate the system's capability.

The "power" and "ability to bring force to bear" of a new weapon are easily demonstrated and should be done so openly for all to see. The demonstration, however, is not for the United States. The demonstration is for those the United States wishes to deter--those who will be conducting the cost-benefit analysis.

The will to use the new weapon system is not so easily demonstrated. Will can only be demonstrated in a conflict. Until the weapon is used in anger, the will to use it is largely a matter of perception.

Will, ability, and combat power are best demonstrated when deterrence fails. Dr. Guertner pointed out that "deterrence failures provide the opportunity to demonstrate the price of aggression (and) rejuvenate the credibility of deterrence."[6] For example, when Iraq massed troops along the Kuwaiti border in 1990 and threatened invasion, they were not deterred. In 1994 when Iraq massed troops along the Kuwaiti border, they were deterred. The difference was the Gulf War. During the Gulf War the United States and the other allied nations demonstrated their combat power, their will to use force, and their ability to bring force to bear.

Conventional Deterrence

Conventional deterrence is a specific use of deterrence. It intends to deter conventional conflict using only conventional weapons. The term conventional eliminates the use of weapons of mass destruction, such as nuclear weapons, chemical weapons, and biological weapons as part of the deterrent threat.

The deterrence literature discussed in Chapter One cited two generally accepted types of deterrence: punishment and denial. Punishment is threatening to destroy large portions of an opponent's civilian population and industry, and is largely associated with nuclear weapons. Denial, on the other hand, relies on convincing the opponent that he will not attain his goals on the battlefield.[7] Conventional deterrence is most often associated with denial.

The predominate factor in the deterrent threat equation for conventional deterrence is the ability to bring force to bear. Costs in

conventional warfare are protracted and add up slowly. In conventional war, the amount of costs is largely a function of the speed with which the attacker achieves his objectives. By contrast, in nuclear war, force is brought to bear quickly. The costs are immediate and incalculable, and nuclear deterrence has been perfect (perfect in that neither side used a nuclear weapon during the Cold War).[8]

From the above discussion of deterrence, it is clear that when a new weapon system is reviewed for its deterrent capability, one must evaluate it for its contribution to the threat formula: power + will + ability = threat. Further, when dealing with conventional deterrence, and therefore denial (as opposed to punishment), speed is a very significant aspect of the ability to bring force to bear.

Conventional Deterrence Forces

In 1993, the Department of Defense conducted a Bottom-Up Review (BUR) in response to President Clinton's pledge to "restructure our military forces for a new era." The BUR was an unprecedented look at all major elements of defense planning, strategy, force structure, and modernization by representatives from the Office of the Secretary of Defense, the Joint Staff, and the individual services. In the final report, the BUR recommended a new force structure that Secretary of Defense Aspin called "a lean, mobile, high-tech force ready to protect Americans against the real dangers they face in this new era."[9] The conventional forces projected for 1999 were as follows:[10]

Active Duty:	Reserve component:
10 Army divisions	5+ Army divisions
11 Aircraft carriers	1 Aircraft carrier
45-55 Attack submarines	7 fighter wings
346 Ships	42,000 Marines
13 fighter wings	
184 bombers	
3 Marine Expeditionary forces	
174,000 Marines	

Included in the above forces are two weapon systems that now conduct missions that could be assumed by CICBMs and one that soon may. The missions involve striking highly defended, high value targets deep behind enemy lines. The three systems are the Tomahawk Land Attack Cruise Missile (TLAM), the F-117 fighter, and the B-2 bomber. All three systems support the two strategy imperatives set out in Chapter One: hold any target at risk and minimize costs in terms of lives.

The Tomahawk Land Attack Missile (TLAM)

The TLAM-C (C for conventional) is a Navy operated cruise missile designed to strike inland targets. It can be launched from surface ships and submarines. The TLAM can carry a 1,000-pound payload 806 miles or a 700-pound warhead 1,036 miles. The warhead can be a conventional bomb or a package of "bomblets." (Bomblets are smaller munitions held in a canister which are released over the target before impact to cover a larger area.) TLAMs fly at low altitudes at 381-571

miles per hour. The latest versions have a circular error probable of about 10 feet, using Global Positioning Satellite updates in flight.[11]

Surface Ships

The TLAM is carried aboard a total of 63 surface ships. The Navy has 31 Spruance-class destroyers equipped to carry the TLAM. Of those, 24 carry one 61-cell launch system with a normal load out of 40 TLAMs. Seven Spruance-class destroyers are each equipped with two 8-cell launch systems. Four Virginia-class cruisers carry two 8-cell launchers each. Finally, there are two 61-cell launch systems on each of the 32 Ticonderoga-class cruisers.[12]

Normally, every launch cell does not house a TLAM. Some launch cells house surface-to-air missiles for self-defense. If the Navy procured enough missiles, they could, theoretically, put a total of 5,456 missiles in as many as 63 different locations at one time.[13]

Submarines

Attack submarines also carry TLAMs. The Navy has 23 boats equipped to launch TLAMs from either vertical launch tubes or existing torpedo tubes. Each of the boats has 12 TLAM launch tubes.[14]

The F-117 Fighter

The F-117 fighter emerged from secrecy in 1988 as the Air Force's first operational aircraft with "stealth" low-observable technology. It was designed to be stealthy in terms of radar, infrared (heat), noise, and visual detection. Stealth was intended to increase survivability and the ability to penetrate heavily defended airspace.

The Air force has one wing of 54 F-117s stationed at Holloman Air Force Base, New Mexico. Each aircraft can carry a maximum of two precision, laser-guided munitions. F-117s can handle a maximum payload of 5,000 pounds and typically take off with two laser-guided 2,000 pound bombs. F-117s fly at subsonic speeds and have a range of 691 miles unrefueled.[15]

The B-2 Bomber

B-2 bombers use stealth technology in a strategic, or long-range, heavy airframe. The Air Force will buy only 20 of these new bombers. They will be stationed at Whiteman Air Force Base, Missouri. Each aircraft will have a maximum payload of 40,000 pounds and will be able to carry sixteen 2,000 pound precision guided bombs. The B-2 has a range of 6,000 miles unrefueled at high altitude and flies at subsonic speed.[16]

Existing Conventional Deterrence

Conventional deterrence always exists at some level. The standing Army, Navy, Marine, and Air Force forces deter aggression against the United States proper. No rational actor would doubt the United States has the force to repel attack, the will to defend its sovereign territory, and the ability to bring that force to bear on any border in a timely manner. But, the interests of the United States go well beyond the nation's borders. The United States, along with allied nations, deter direct attack in all theaters. Every day the world goes without an attack is a day that, theoretically, deterrence prevailed.

Current United States strategy calls for a force capable of fighting and winning two nearly simultaneous major regional conflicts (MRC) anywhere in the world. Ideally, if deterrence were to fail in one area, that fact alone would not cause deterrence to fail in another. Obviously, if most of the United States' military capability is committed to an existing MRC, then the combat power factor in the threat equation as viewed by a second potential aggressor would be reduced. Thus, the United States must attempt to show to the world that it can fight and win two MRCs nearly simultaneously.

In recent years the United States has returned to relying heavily on home-based forces. After the Second World War, the United States relied heavily on forward basing as a way to enhance its ability to bring force to bear throughout the world; but, forward basing is no longer affordable. Now, combat forces are deployed around the world, when and where they are needed. This is called force projection.

Force projection, then, involves keeping United States military forces at home and rapidly deploying them to trouble spots when necessary. It includes conventional strategic bombing, air mobility, fast sealift, and ready, deployable troops. As the Air Force puts it, "global reach, global power."[17]

Force projection demands that the United States build, support, and train flexible, adaptable forces. Ideally, each unit and weapon system must be operable and effective in the mountains, on the desert, and deep in the jungle. Forces must be mobile. Mobility includes, not only initial deployment from the United States to a theater, but also re-deployment from that theater to a second theater if necessary. The

result is an enhanced role for the ability-to-bring-force-to-bear part of the threat equation.

Conventional Deterrence Gaps

If there is a gap in the United States' conventional deterrent capability, it is twofold. First, is the ability to bring force to bear quickly before an aggressor can achieve his objectives. The recent episode in the Middle East is a good example.

Bringing Force to Bear

On 8 October 1994, The Washington Post reported that 10,000 soldiers moved from Baghdad to the Kuwait border to join the existing 40,000 troops in that area.[18] At that time, the United States had limited forces in the area and quickly began a buildup.

At the start of the buildup, there were no F-117 fighters and no Tomahawk cruise missiles within range. This is significant because the F-117 and the TLAM are only two existing weapons systems the United States would send into the heavily defended capital city of Baghdad as discussed in Chapter One. F-117 fighters were not dispatched from the United States until 10 October, two days after the initial alert.[19] Two United States ships carrying cruise missiles were in the Arabian Sea: the USS Hewitt with 72 cruise missiles and the USS Leyte Gulf with 122 cruise missiles.[20]

The Straight of Hormuz, the southern most part of the Persian Gulf is about 900 miles from Baghdad. The USS Hewitt and the USS Leyte Gulf were in the Arabian Sea. Assuming the two ships were not in the Gulf of Oman when the crises started (the Gulf of Orman separates the

Arabian Sea and the Persian Gulf), the very closest they could have been was about 1,550 miles, almost twice the maximum range of the TLAM. This means the TLAMs were not in range when the confrontation began.

Typically, the time to get a TLAM on target is three to six days, depending on the location of the ships and the availability of targeting and terrain data. Long-range air forces, such as a strategic bomber, would take many hours in flight time alone.[21] Mission planning and aircraft preparation take many more hours before the aircraft can take off. If, in October 1994, Iraqi President Saddam Hussein had attacked Kuwait immediately, neither the United States nor any other allied power could have been assured of stopping him militarily. The world would again have been faced with the task of liberating Kuwait after its capture.

Weapon System Ineffectiveness

A second possible gap in United States' deterrent capability is the situational ineffectiveness of TLAMs, F-117s, and B-2s. No weapon system is perfect for all situations. Even within the narrow scope of missions assigned to these three systems (those involving highly-defended, high-value targets deep behind enemy lines) the TLAM, the F-117, and the B-2 have some vulnerabilities and limitations that restrict their use.

TLAM Vulnerabilities and Limitations

For the TLAM the primary limitation is overflight restrictions. On the first day of the Gulf war, TLAMs could not be fired from the Eastern Mediterranean since they would fly over Turkey and Syria without

either country's consent to missile overflights. The featureless desert in southeastern Iraq and Kuwait made it necessary for the terrain-following TLAMs, launched from the Persian Gulf, to fly over the mountainous coast of western Iran. In the case of Iran, overflight permission was neither sought nor granted. The overflight problem weakened the threat posed by the USS Hewitt and the USS Leyte Gulf. The potential aggressor had to determine if the United States would overfly Iran when the United States was not acting as part of a coalition of western and Arabic nations. Clearly in a regional conflict, overflight restrictions can weaken the threat posed by the TLAM.[22]

A second problem for the TLAM is its vulnerabilities. The TLAM can be detected and killed by ground-based defensive systems. TLAMs are theater missiles and theater missile defense systems are not restricted by the Antiballistic Missile Treaty. During the Gulf War, United States' accounts suggest two TLAMs may have been shot down.[23] One of the five TLAMs launched against the Al Rashid Air Base in Iraq on day 15 of the air campaign was shot down. The resulting collateral damage to surrounding civilian buildings contributed to the end of TLAM participation in the war.[24]

Much later in January 1993, the United States launched 40 TLAMs at Zaafaraniya, Iraq, a large industrial complex near Baghdad. Eight of the missiles missed. One fell to the sea. Three fell 150-600 feet short and hit an orchard. Three more landed inside the complex but missed the buildings. Finally, and most importantly, one TLAM was shot down by Iraqi antiaircraft artillery around Baghdad. The struck TLAM fell into the Rashid Hotel in downtown Baghdad and killed two Iraqis.

Other Iraqis and foreigners were wounded. Though the number is not significant, the fact that TLAMs can be acquired and killed is significant.[25]

New low-level sensors are being developed and sold worldwide. They are being developed, deployed, or both in France, Denmark, Finland, Austria, Holland, India, the Netherlands, Israel, Italy, Russia, South Africa, Sweden, the United States, and probably many more countries. Whoever has the money can buy sophisticated systems that detect low-level targets 40 to 80 kilometers out and pass the targets on to other detection systems linked to anti-missile weapons. The high-tech networks include command and control centers, passive infrared alerters, and even night sights on surface-to-air missile systems.[26]

The United States has adapted the Hughes Aircraft AN/MPQ-64 three dimensional radar as a ground based sensor to alert and cue Avenger fire units and air-defense teams using shoulder-mounted and vehicle-mounted Stinger missiles. The MPQ-64 can track 25 targets simultaneously and has been successfully demonstrated against unmanned aerial vehicles.

Also, the surface ships that carry TLAMs are vulnerable. TLAM-equipped surface ships are vulnerable to anti-ship missiles and subsurface boats. That thesis, put forth by Rear Admiral Locke, was discussed in Chapter One. In 1982, the British lost the HMS Sheffield to one air launched Exocet missile.[27] This vulnerability requires that TLAM-equipped ships not be allowed to function independently and therefore restricts their mobility.

F-117 Vulnerabilities and Limitations

The F-117 fighter, though stealthy by design, is vulnerable to the same factors that hinder other attack aircraft: weather, defensive systems, and human error. F-117s in the Gulf war missed 25 percent of their targets due to clouds, enemy gunfire, and pilot error.[28] (A 75 percent success rate, however, is still quite good.)

Weather can be very significant. The weather over Iraq during the Gulf War was the worst it had been in fourteen years. While improvements to precision weapons, such as the Joint Direct Attack Munition, will correct the weather limitations on laser-guided systems,[29] in the Gulf War the weather problem was self-imposed. The rules of engagement in the Gulf required F-117 pilots to attack only if they had positive identification (visual) and good weather.[30]

The F-117 has the additional limitation of being a nighttime-only fighter. It can fly during the day, but it can be seen too. Radar Absorbent Material and angular designs do not trick the human eye, and if one can see it, one can kill it. In March 1994, Bill Sweetman, who has written several pieces on the F-117 for the International Defense Review, emphasized that the F-117 was restricted to night attacks against fixed, surveyed surface targets in clear weather.[31]

The F-117 is vulnerable to advancements in aircraft detection systems. It was designed to be stealthy in radar, infrared, and noise signatures. Detection in any area exposes the aircraft to threat. Improvements in radar detection are being vigorously researched.

Radar detects aircraft by virtue of the radar cross section (RCS) produced by the aircraft. A discussion in layman's terms of how a

reduced RCS reduces radar effectiveness can be found in Stealth by Doug Richardson.[32] Suffice it to say that the radar signature of the F-117 is small enough to make current radars ineffective. This is compounded by the fact that to achieve even a 50 percent probability of kill, the three interrelated air defense functions (surveillance, fire control, and kill) must each have an 80 percent probability of success.[33]

Despite current radar inadequacies, it would be foolish to assume the F-117 will remain practically undetectable. A great variety of radar methods are being studied for possible enhanced detection capability including VHF, over-the-horizon, and laser radar, to name a few. However, none of these systems can yet acquire and track an F-117 with the necessary accuracy to kill it.[34] Remember, no F-117s were shot down during the Gulf War.

B-2 Vulnerabilities and Limitations

The B-2 is essentially vulnerable to and limited by the same things as the F-117. In addition, existing B-2s can deploy only Mark 84 "dumb" bombs. Follow-on models will have precision guided weapons capability, but not until September 1997 (according to current schedules).[35]

CICBM Conventional Deterrent Capabilities

The CICBM affects two ingredients of the threat equation: combat power and the ability to bring force to bear. It does not contribute much, if any, to the remaining ingredient: the will to use combat power. Like stealth aircraft and the TLAM, however, the CICBM does have some vulnerabilities and limitations.

Combat Power

The CICBM would add to the United States military power in much the same way that more bombs, more aircraft, or more artillery pieces would. The CICBM could carry a wide variety of munitions for a wide variety of missions, such as cluster bombs, earth penetrators, and high explosives. But, it would not add significantly to the amount and types of forces listed above. The key to the CICBM is not the bomb; the key is the mode of delivery.

Ability to Bring Force to Bear

The ability to bring force to bear is the primary attribute of CICBMs. First, consider range. A launch site in Florida and one in California would give CICBMs global range. CICBMs could strike anywhere in the world without deployment, without any prepositioning.

CICBMs are potentially a third weapon system to use against heavily defended targets in a scenario like the Iraqi troop movement discussed above. The CICBM is a strategic-range, standoff weapon. CICBMs would have been in range instantly and could have been targeted within an hour. They could have held the most critical targets in Baghdad at risk until the TLAMs and F-117 arrived.

Second, consider probability to penetrate. The CICBM would have a very high probability to penetrate. No defense system exists that can target and destroy a high-speed reentry vehicle with any degree of certainty.

Third, consider speed. As already noted, speed in conventional, denial deterrence is imperative. After a launch decision

is made, the CICBM could strike in the time it takes to launch plus the time it takes to fly. A fully operating, but not yet targeted, CICBM can be ready to launch in one hour. The flight time from launch to target would be a maximum of 30 minutes.[36] The total then, is a 90 minute maximum response time with no warning. If, however, some warning is given, CICBMs could be targeted during the force-employment-decision cycle; and the response time would be equal to that of the flight time, about 30 minutes. No existing system is as quick. Targeting for TLAMs, even if in range, is not nearly as fast.

Speed could be the CICBM's most significant contribution. They could provide what Dr. Guertner called immediate deterrence. Immediate deterrence is when "a potential attacker is actively considering the use of force, and the deterrer, aware of that threat, issues a counterthreat to deter."[37] CICBMs would give the United States the ability to make counterthreats of immediate punishment and carry them out.

The effect the CICBM would have on the threat equation is therefore significant. At no time and in no place would an actor be immune to the effects of United States weaponry. A person contemplating an attack would have to deal with the possibility that the United States could render ineffective his primary command and control centers (assuming they are not nuclear hardened), make unusable his most essential runways, or damage his most prized assets within 30 to 90 minutes from the start of hostilities.

CICBM Vulnerabilities and Limitations

The CICBM is vulnerable to new technologies in detecting, tracking, and killing. CICBMs will not remain unchallenged forever. However, the ICBM has been in existence for over forty years, and the only existing antiballistic missile system is around the city of Moscow. Despite the billions of dollars spent on the Strategic Defense Initiative ($35 billion over 10 years), the United States still has no capability to kill an incoming reentry vehicle.

A CICBM limitation is safety. CICBMs launched in anything other than total war, would likely be restricted by safety concerns. Safety concerns include the size of launch corridors and the airspace and seaspace within the corridors.

Conclusion

Deterrence and conventional deterrence result from a series of calculations. First, a potential aggressor determines what threat he is up against. To do this, he looks at the enemies (the deterrer's) combat power, will to use force, and ability to bring force to bear. Once the threat is assessed, the aggressor determines the costs that will come from that threat. Then, he compares the costs to the benefits he hopes to reap by acting. If the benefits outweigh the costs, he acts. If the costs are greater than the benefits, he remains deterred.

The United States has a great deal of deterrent threat. Its combat power is unparalleled. Its will to use force has been amply demonstrated. Additionally, the United States' ability to bring force to bear on an enemy is considerable. But in that last component of

threat, ability to bring force to bear, the United States needs the most improvement.

CICBMs would contribute greatly to the United States' ability to bring force to bear. CICBMs would have worldwide range and quick reaction. They could accurately strike a target with tremendous speed, without overflying other countries, and would be virtually indefensible.

CICBMs would significantly add to the conventional deterrent threat posed by the United States and therefore have a role to play. The United States stands the risk today of a deterrence failure based on its inability to bring force to bear before an enemy can achieve his desired objectives. One often repeated lesson learned from the Gulf War is that you do not give the United States six months to prepare for a conflict. The next aggressor may take that lesson to heart.

CHAPTER THREE

THE ROLE OF CONVENTIONAL INTERCONTINENTAL BALLISTIC MISSILES IN OPERATIONS OTHER THAN WAR

Operations Other Than War (OOTW) is a new term for an old use of military power, but one of increasing importance. The United States military is involved in at least a dozen OOTW activities at any one time. A new weapon system being considered for its contribution to United States military strategy must be evaluated for its utility in OOTW activities. To do so, one must understand what the CICBM has to offer and what guidelines would govern its use in peacetime. Then one must examine the activities involved in OOTW and determine whether or not the activities have violent aspects. Finally, one must determine, given the CICBM's attributes and use guidelines, if the CICBM could assume some of the possible missions for the violent and potentially violent OOTW activities.

CICBM Attributes

The CICBM has many attributes. As already discussed, CICBMs offer the following unique characteristics: worldwide range, exceedingly quick reaction (30 to 90 minutes from notification to impact), assured penetration, and no overflight of foreign airspace. CICBMs also have the following characteristics that are not unique: They are unmanned. The payload is flexible and can vary according to the mission. They can be used day or night in any weather.

Guidelines for Using CICBMs

Guidelines are needed to ensure CICBMs are used only when they are necessary or most advantageous. Effects of their use are not limited to the explosive power in the warhead. No one has ever been attacked by an intercontinental ballistic missile and any such strike could have enormous repercussions. CICBMs must not be construed as weapons of terror. They must be used judiciously. Military planners would use guidelines to decide when to use a CICBM as opposed to a Tomahawk Land Attack Missile (TLAM), an F-117 fighter, or a B-2 bomber.

There are two types of guidelines: enabling and restrictive. Enabling guidelines serve as guidance for when a CICBM may be used. A proposed mission must fit at least one enabling guideline--the more enabling guidelines the mission fits, the greater the case for using the CICBM. Restrictive guidelines are instances when the use of CICBMs would be inappropriate. A mission that violates one of the restricted guidelines would be better served by a different weapon.

This thesis will use the following eight guidelines for employing CICBMs in OOTW activities:

1. CICBMs may be used for high-payoff/high-priority targets. Each CICBM is a one time use weapon and each missile will likely be expensive. Therefore, it is important that CICBM targets be important and the results of successful CICBM attack be commensurate with the cost of the weapon.

2. CICBMs may be used against heavily defended targets to assure penetration. A target may not otherwise fit the CICBM profile, but advanced air defenses protecting the target may require a ballistic missile.

3. CICBMs may be used to "expose the machine not the man." This guideline includes targets that are heavily defended; but it also includes missions where no loss of life is acceptable. Additionally, it includes missions where the danger to a downed pilot or the risk of exploitation of a downed pilot is unacceptably high.

4. CICBMs may be used when quick reaction is paramount and other forces are unavailable or not sufficiently quick. This particularly applies in cases where the target's criticality is short lived.

5. CICBMs may be used when overflight or other restrictions (e.g., weather, time of day) make other systems unusable or inappropriate. The CICBM travels exoatmospherically, above any claim of protected airspace.

6. CICBMs should not be used if either the Navy's Tomahawk Land Attack Missile (TLAM) or the Air Force's F-117 fighter or B-2 bomber are more appropriate and available. Only the best system for the mission should be used.

7. CICBMs should not be used in the close fight. The thirty minute flight time is too long. Also, the potential cost of a miss so close to friendly forces would be unacceptable.

8. CICBMs may not be used solely for the psychological affect of conducting strategic ballistic missile strikes. The CICBM is not a terrorist weapon. It is a quick-reaction, precision-guided, standoff weapon. The military must eliminate any correlation between CICBMs and unreliable, inaccurate systems such as the Scud missile.

OOTW Activities

OOTW activities are defined by Army Field Manual (FM) 100-5, Operations as "military activities during peacetime and conflict that do not necessarily involve armed clashes between two organizations."[1] The United States military may be called upon to perform operations other than war at anytime. FM 100-5 lists thirteen specific activities that are operations other than war. Those activities are:

1. Noncombatant evacuation operations
2. Arms control
3. Support to domestic civil authorities
4. Humanitarian assistance and disaster relief
5. Security assistance
6. Nation assistance
7. Support to counterdrug operations
8. Combating terrorism
9. Peacekeeping operations
10. Peace enforcement
11. Show of force
12. Support for insurgencies and counterinsurgencies
13. Attacks and raids[2]

OOTW activities can be divided into three categories: nonviolent, potentially violence, and violent. Nonviolent activities do

not involve combat power as a part of the mission. The military performs these activities because of its vast logistical resources, mobility assets, engineering abilities, manpower, or similar nonviolent attribute. Potentially violent activities are those not inherently violent, but that could develop into violence or rely on combat force to accomplish the mission. Violent activities are combat related and rely on combat force directly.

Not all OOTW activities can benefit from the CICBM's attributes, but some can. Each OOTW activity must be examined with one eye toward the past and one eye toward the future to determine whether or not the CICBM has a role to play. The definitions for each activity are borrowed heavily from FM 100-5.[3]

Nonviolent OOTW

Four OOTW activities are purely nonviolent. They are: support to domestic civil authorities, security assistance, nation assistance, and support to counterdrug operations. By definition (i.e., nonviolent), the CICBM has no role in these activities, but a quick review will help distinguish these from other OOTW activities.

Support to Domestic Civil Authorities

Support to domestic civil authorities includes disaster relief, humanitarian assistance, and similar operations within the continental United States. The key word is domestic. Past examples include military assistance following the 1992 Hurricane Andrew in Florida and Louisiana and support to civilian authorities by Joint Task Force LA following rioting and other violence in Los Angeles.[4]

Security Assistance

Security assistance includes training another country's armed forces and the Foreign Military Sales Program (FMSP). An example of training was the activity of United Sates military members in El Salvador from 1982-1992.[5] Through the FMSP the United States sells arms to selected nations throughout the world to further its own national interests and policies. While CICBMs could be sold, it would be absurd.

Nation Assistance

Nation assistance supports self-development efforts within a foreign nation. The goals are to promote long-term stability, develop sound and responsive democratic institutions, develop supportive infrastructures, promote strong free market economies, and provide an environment that allows for orderly political change and economic progress. Operation Uphold Democracy in Haiti (not as originally planned, but as eventually carried out) is an example of national assistance.[6]

Support to Counterdrug Operations

Support to counterdrug operations include supporting law enforcement and other agencies within the United States or of other countries. Operation Ghost Zone, begun in 1990 to disband Bolivian drug trafficking, is a good example.[7]

While destroying drug production facilities is one type of activity, United States forces simply provide assistance to host nation forces who in turn destroy the facilities. Even if this policy were to

change and United States military forces became directly involved in destroying drug production facilities, CICBMs would not be appropriate. Drug production facilities would most likely not meet any of the enabling guidelines.

Potentially Violent OOTW

There are seven potentially violent OOTW activities. They are: support for insurgencies and counterinsurgencies, noncombatant evacuation operations, peacekeeping, show of force, humanitarian assistance and disaster relief, arms control, and combating terrorism. CICBMs could be used in the last four, but not the first three.

Support for Insurgencies and Counterinsurgencies

Support for insurgencies and counterinsurgencies would not involve CICBMs. Military resources to aid a nation's efforts in a counterinsurgency are limited to foreign internal defense support. Foreign internal defense support involves mostly logistics and training. United States operations in El Salvador from 1982 to 1992 are an example.[8] Insurgency support on the other hand, is normally covert. CICBMs would not be appropriate for covert missions.

Noncombatant Evacuation Operations

Noncombatant evacuation operations would not involve CICBMs. This activity is intended to evacuate civilians from an area where their safety is jeopardized. The evacuation of United States Embassy personnel from Liberia during Operation Sharp Edge in August 1990 is an example.[9] Though force may be required during the operation, targets

are unlikely to involve heavily defended areas and would surely be in the close fight (violates guideline number seven).

Peacekeeping Operations

Peacekeeping operations help maintain an existing peace in a area where conflict is likely. While violence could erupt quickly, peacekeeping forces would not be participants. The use of force is limited to self-defense. CICBMs would be inappropriate. An example of peacekeeping operations is the Multinational Force and Observers in the Sinai peninsula. The United States contributes an Army battalion to keep watch over the Egyptian-Israeli border. They have been present since April 1982.[10]

Show of Force

Show of Force missions are intended to show resolve. They act as a type of deterrence. The operations include training exercises, deployment, and buildup of combat forces in the region. An example was the buildup of forces in Kuwait in response to Iraqi troop movements in October 1994.[11]

CICBMs could play a role in this activity. Their conventional deterrent capability was established in Chapter Two. The United States could announce specific targets that have been loaded in the missiles and that they are ready for launch at a moments notice. If the CICBMs are not kept in alert status (i.e., ready to launch), they could be openly generated to launch readiness. This is called posturing. Posturing military forces (though nuclear) was an effective tool used by

President Nixon in October 1973 to put an end to the Arab-Israeli war and keep the Soviet Union from intervening.[12]

It is essential that commanders remain within the guidelines when using CICBMs in a show-of-force role. Show-of-force is closely tied to threat and conventional deterrence. As discussed in Chapter Two, the will to use force is an important part of the threat equation (Threat = combat power + the will to use force + the ability to bring force to bear). Threatening to use CICBMs must be consistent with how the United States would actually use them. For example, Haiti would probably not be threatened by the posturing of CICBMs as it is unlikely the United States would ever use CICBMs to strike such a poorly defended, close country. Other instruments, even manned systems would be more appropriate.

Humanitarian Assistance and Disaster Relief

Humanitarian assistance and disaster relief operations Provide Comfort in Iraq and Restore Hope in Somalia are examples.[13] In both cases force was used during the operation. CICBMs would not have been used in either of the force packages employed. The best evidence that CICBMs would not have been used is that neither the TLAM nor the F-117 fighter were used.

In the case of Operation Provide Comfort II, intended to provide continued protection of the Kurds in Northern Iraq,[14] punitive air strikes were used to allow the operation to continue unhampered. In April 1993 three F-16 Falcons bombed an Iraqi artillery site.[15] In August that same year, two F-16s and two F-15 Strike Eagles attacked an Iraqi surface-to-air missile site.[16] In both cases, the Iraqis had

fired on patrolling aircraft. It was possible, however, that the targets struck could have fit the guidelines for using CICBMs.

If the above targets had met one of the CICBM guidelines, there were no F-117s in the area and the ship-borne TLAMs could easily have suffered from overflight restrictions or have been out of range. Quick reaction might have been essential as the intended target would soon fade.

Target fade is when an intended target is critical, or high payoff for a specific time and then fades to a lower priority. It is not quite the same as target dwell time or loiter time used by Army field artillery. Low dwell time or loiter time targets are time sensitive, but more because they are apt to move than because the priority will decrease. Before continuing to Arms Control, it is important to explore the concept of target fade.

A good example of target fade is a temporary or backup command and control facility. It is a high payoff target only when the command team is in it. The window of opportunity may last only a couple of hours. After that, the possibility of the command team relocating increases, and the target begins to fade. Once the command team leaves, the target is no longer high payoff.

CICBMs could strike targets before they fade. CICBMs would deliver their weapons in 90 minutes with little or no warning. If the selected target is prestored in the missile's onboard guidance computer, the CICBM could strike the target in 30 minutes. No other system can match a 90 minute or less response time.

Command and control networks that would allow for secure, instant communications between the on scene commander, the pentagon, and the CICBM launch site in order to support such a "real-time" execution are easily assembled. They would be simple compared to the complex, redundant networks design for nuclear war. Those nets linked all of the United States' nuclear fighting forces at sea, in the air, and underground; all the command and control assets in airborne, underground, and mobile command centers; all warning and tracking sites; the Pentagon; and the President.

Arms Control

Arms control is intended to promote strategic military stability. Military assets are used to gather intelligence, support verification efforts, and provide intelligence support. An emerging aspect of arms control is nuclear nonproliferation. Unchecked nuclear proliferation could cause immediate strategic military instability.

The CICBM could play a role in nonproliferation. Offensive actions may be needed to eliminate a particular weapon or weapon support facility. Reportedly, North Korea is, or was, developing a nuclear weapons program.[17] North Korea had signed the Nuclear Nonproliferation Treaty in 1985, but was apparently violating it.[18] CICBMs would be capable of striking a nuclear production plant in North Korea without overflying the country, without crossing the 38th parallel, and without placing American fighting men in harms way. The United States could announce its intent, even announce the timing of the strike so the targeted facility could be evacuated, and still be assured of getting the bomb on target.

A past example of offensive, preventative action in support of nonproliferation was the Israeli air strike on an atomic reactor in Iraq in June 1981. The Israelis believed an Iraqi nuclear reactor would have enabled Iraq to produce nuclear weapons. The strike was carried out by F-4 Phantoms and F-15s.[19] If the United States wanted to carry out that same mission, a CICBM would be well suited, have no overflight problems, and not risk American lives. As it was, the attacking Israeli aircraft had to fly south around Jordan and across Saudi Arabia to get to the reactor located near Baghdad.[20]

Combating Terrorism

Combating Terrorism includes antiterroism, which is essentially defensive, and counterterrorism, which is essentially offensive. The Libya raid or Operation Eldorado Canyon was an example of counterterrorism. Eldorado Canyon serves as a good example for using CICBMs in a combating terrorism activity. Eldorado Canyon actually constituted an "attack" (as opposed to a "raid") as described below. The purpose of the attack, however, was to combat terrorism.

Violent OOTW

There are only two OOTW activities that are clearly violent from the onset. The first is peace enforcement; the second is attacks and raids. The CICBM could be used in either as long as the military followed the proper guidelines for use.

Peace Enforcement

Peace enforcement operations restore peace or establish the conditions for peace. Peace enforcement forces are not neutral like

they are in peacekeeping operations. They use military force to coerce hostile factions to desist. CICBMs could be used as long as the mission complied with the guidelines. The United States' desire to minimize loss of life would probably be particularly heightened in a peace enforcement operation (the third guideline).

Operation Deny Flight over Bosnia-Herzegovina could develop into a peace enforcement operation. The North Atlantic Treaty Organization (NATO) is conducting operation Deny Flight for the United Nations to enforce a no-fly zone over Bosnia. Deny Flight also provides close air support for the United Nations forces on the ground.[21] The NATO forces are neither neutral nor acting solely in self-defense. In 1993, NATO was debating whether or not to expand the operation beyond protection of the UN forces on the ground. The expansion would include air interdiction with predetermined targets.[22]

NATO remains apprehensive about expanding operations to conduct peace enforcement. There are no recent precedents for peace enforcement. NATO's apprehension amplifies the need to minimize costs in terms of lives and therefore adds to the suitability of CICBMs.

Attacks and Raids

Attacks and raids, though lumped together, are different. A raid involves penetrating enemy territory, obtaining information, temporarily seizing an objective, or destroying a target and quickly withdrawing. CICBMs are not appropriate for a raid. Attacks, on the other hand, are used to damage or destroy high-value targets or demonstrate United States resolve and capability. Attacks are the most likely of the OOTW activities to use CICBMs.

CICBMs could easily be appropriate when conducting an attack as the mission is well suited to CICBMs. The use of CICBMs to support other OOTW activities would typically constitutes an attack. In Operation Eldorado Canyon, the United States used an attack to support the broader counterterrorism operation.

Eldorado Canyon: A Case Study

The April 1986 attack on Libya terrorist compounds by naval and air forces is an example of the OOTW activity "attacks and raids." It was called Operation Eldorado Canyon. At once a demonstration of United States military power and an example of the tremendous difficulties of conducting long-range attacks, Eldorado Canyon took over 15 hours to execute a 19-minute attack.

This thesis will use the account written by Daniel P. Bolger in his book Americans at War, 1975-1986, An Era of Violent Peace.[23] Information from other sources are as noted. Official accounts of the operation are classified and were not used. Unclassified accounts of the attack vary greatly from article to article. Bolger has made an excellent effort to resolve the differences and present a cohesive picture. Small inaccuracies, if present, do not distort the picture beyond usefulness as a "real world" example of an OOTW attack.

The key to examining Eldorado Canyon as a prototype for future CICBM missions is to consider the operation in today's environment. The use of CICBMs should not be balanced against the F-111 fighter-bombers used in the attack. Using CICBMs should be compared to using B-2 bombers or F-117 fighters. Even the TLAM, which was available at the time, considered, and rejected (for fear of compromising technologies--

the same reason the F-117 was not used), must be reconsidered in view of its effectiveness during Operation Desert Storm.

The Objectives

On 9 April 1986, President Reagan authorized Operation Eldorado Canyon to destroy Libya's terrorist infrastructure. Instructions were to minimize casualties to United States forces and Libyan civilians. On the operational level the objectives were as follows:

1) Bomb terrorist facilities in Tripoli: Aziziyah Barracks, Murat Sidi Bilal Training Camp, Tripoli Military Airfield.
2) Bomb terrorist facility in Benghazi: Jamahiriyah Barracks.
3) Suppress Libyan air defenses: bomb Benina Military Airfield, destroy air defense radar network.

These objectives identified four terrorist targets: Jamahiriyah Barracks, Aziziyah Barracks, Murat Sidi Bilal Training Camp, and Tripoli Military Airfield. Vice Admiral Frank Kelso, Commander Sixth Fleet, would command the operation.

The Problems

Eldorado Canyon revealed several difficulties with conducting an attack. The 19 minutes of violence involved more aircraft and combat ships than Britain used during the entire Falkland campaign.[24] Eldorado Canyon involved over 100 airplanes and tied up most of the sixth fleet in the risky night attack. Overflight restrictions necessitated long routes and multiple refuelings that brought on pilot and aircraft fatigue.

Numerous Support Aircraft

Only 25 percent of the airborne aircraft were directly performing the mission set out by the President. Of the 100 airplanes

used, only 45 attacked ground targets. Of those 45 aircraft, only 25 were assigned against terrorist facilities. The other 75 percent were support efforts, such as command and control, refueling, fighter escort, and air defense suppression.

The attacks on Libya's air defenses were necessary, but unfortunate. Surface-to-air missile sites were run by regular Libyan forces and not by one of Libyan leader Colonel Moammar Gadhafi's personal squads of thugs. Regular military officers were reluctant supporters of Gadhafi, and could be considered more of an asset to the American cause than a liability.

The Libyan air defenses were the most technologically sophisticated defense that air force pilots had faced up to that time.[25] However, limitations had been demonstrated in the weeks leading up to the attack as Navy aviators tested Libya's resolve near the Gulf of Sidra. Because of the air defenses and the threat of fighter interceptors, the attack was flown at night with many aircraft devoted to jamming and air defense suppression.[26]

Night Operations

A nighttime attack was selected both to limit Libya's air defense capability and minimize risk to American forces. Libya had 12 night-capable MIG 23 Floggers flown by good pilots from other countries. To maximize the effect, carriers launched aircraft from blackened decks. In the air, aircraft could not easily see each other and radio traffic was minimized. Vice Admiral Kelso accepted risk onboard ship and in the air in order to reduce risk over the target. Night operations are inherently dangerous, but fortunately, there were no accidents.

Overflight Restrictions

Vice Admiral Kelso wanted to conduct the attack in one swift punch. To do so with all Navy assets, one target would have to be eliminated. Instead, he chose to use Air Force F-111 fighter-bombers based in England.

Britain granted permission to launch the attacks from English soil, but both France and Spain refused permission to overfly their country. Their refusal resulted in a punishing 6,400 mile circuitous route down the west coast of Spain and Portugal and through the Strait of Gibraltar. The F-111 aircrews refueled four times during the mission. They spent 6 hours, 24 minutes en route to the target area and 8 hours, 10 minutes to get back. Fatigue took its toll on man and machine.

Fatigue

According to Bolger, two F-111s were lost due to crew misorientation. One of the crews flew the wrong direction following a refuel. They became hopelessly behind and aborted. The second crew cartwheeled into the Mediterranean Sea for no apparent reason. They were the only American casualties in the attack. No one is sure why the crew crashed into the sea, but fatigue was certainly a contributing factor.

The long flight with many altitude changes and the four bumpy refuelings was too much for some of the equipment. Several F-111s suffered electronic malfunctions that degraded their bombing accuracy. They were forced to abort by strict rules of engagement. Any bomb that

hit the civilian buildings that surrounded each target was of no value to the mission. In fact, it could have counter-value.

Intelligence and Weather

Other problems were intelligence leaks and poor weather, not at all unique to this mission. According to Lieutenant Colonel Gary Snyder, then a captain squadron weapons officer who was involved in the mission planning, initial press reports in January, months before the mission took place, brought on the need for the numerous air defense suppression and electronic countermeasure aircraft that accompanied the strike aircraft.[27] Closer to the mission, news agencies got wind of something about to happen and their military analysts' speculated on possible courses of action. The speculation was fairly accurate. Vice Admiral Kelso considered postponing the mission rather than accept heightened risk to American forces. Also, cloud cover over the target area caused some target deviations.[28]

Weapons Laydown

The four terrorist targets were hit with two types of weapons. Twelve F-111s were loaded with 2,000-pound laser-guided bombs (LGB). Six F-111s and seven A-6E Corsairs were loaded with 500-pound high drag bombs. Only the 2,000-pound laser-guided bombs are precision munitions.

This analysis will concentrate on the use of precision weapons. They were used against the Aziziyah Barracks and the Murat Sidi Bilal Training Camp. The other two terrorist targets were attacked with 156 "dumb" bombs, and numbers of "dumb" bombs cannot be easily translated

into numbers of LGBs. CICBMs, F-117s, B-2s (when fully capable), and TLAMs would all pack precision-guided munitions.

Only 58 percent of the LGBs sent to Libya were ever dispatched. Each of the twelve F-111s carried four LGBs for a total of 48. Four F-111s aborted, and one was lost at sea. That leaves twenty-eight 2,000 pound LGBs to destroy the two objectives. In his book Raid on Qaddafi, Colonel Robert Venkus, then vice commander of the Air Force wing assigned the F-111 mission, scored only four F-111 strikes as "hits" (16 LGBs); the rest were misses.[29] Despite the number of misses, the mission was considered a success. With that in mind, the question is: How could the United States military plan an attack on two similar terrorists facilities in the future?

Analysis

Future planners would have four weapons delivery systems to choose from: F-117s, B-2s, TLAMs, and CICBMs. Each weapon system should be measured as to how well it deals with the six problems identified above: numerous support aircraft, night operations, overflight restrictions, fatigue, intelligence leaks, and poor weather.

The two targets, Aziziyah Barracks and Murat Sidi Bilal Training Camp, each represent only one specific aim point or desired mean point of impact (DMPI). Several aircraft were assigned against each DMPI to ensure success, given the accuracy of LGBs in use in 1986. Today the number of bombs used would be significantly reduced. Lieutenant Colonel Snyder, who also worked matching weapons to targets during Desert Storm as a member of the Guidance Apportionment and Targeting Cell under Lieutenant General Glosson, estimates that two

2,000-pound LGBs would be required for Murat Sidi Balal and three 2,000-pound LGBs would be needed for Aziziyah Barracks.[30]

F-117 fighters would solve one problem and leave five unsolved. Planners would need to plan for three F-117s, each one carrying two 2,000-pound LGBs, and at least one backup.[31] Presumably they would not require an extensive package of jamming and escort aircraft. They would, however, have to attack at night. F-117s would suffer from the same overflight restrictions, long routes, and multiple refuelings that fatigued the F-111s and crews. (This begs the question: If the F-117 is truly stealthy, could it overfly France sans permission?) The newer equipment on the F-117 would not be as affected by the jarring flight as the F-111, but some aborts would probably occur. Intelligence leaks could compromise the mission. Weather in the target area would remain a concern.

B-2s would solve two problems and retain four. Planners would probably use two B-2s each carrying sixteen 2,000 pound LGBs (more than enough for this scenario).[32] The B-2s would not need the escort/jamming package, but would again be limited to night operations. They would most likely launch from the continental United States as forward positioning would attract a great deal of attention and speculation. They would definitely need air refueling. Overflight would not be a problem in this scenario as Libya is accessible from the Mediterranean Sea. The pilots would have to fly thousands of miles, and fatigue could be a factor (but nearly so much as with the cramped cockpits of fighter aircraft). Intelligence leaks and poor weather over the target area would remain a concern.

TLAMs would solve five of the problems, leave one unsolved, and create a new problem: Navy ships in the area. Planners would have to use at least eight TLAMs.[33] Navy ships, probably one carrier battle group, would have to be in position, but the escort and jamming aircraft would not be needed. Since TLAMs do not expose American flyers, they could attack during the day or at night. TLAMs would not suffer from overflight restrictions, but overflight could be a problem in a different scenario. Neither fatigue nor weather would be problems. Intelligence leaks would not increase the risk to American forces as the TLAM is unmanned, but the TLAM is vulnerable to low-level detection (explored in Chapter Four) and kill (as in the Al Rashid incident in Chapter Two). Intelligence leaks would remain a problem.

CICBMs would solve all the problems and add none (not counting possible backlash for using an unprecedented weapon). The mission would require five CICBMs.[34] No support aircraft would be required. No Ships would have to be in the region. They could be used day or night. They would not be affected by overflight concerns. Fatigue and weather would not be a factor. Intelligence leaks would not be a factor as the Libyans had no defense against reentry vehicles from space regardless of how far in advance they knew of the attack or how accurately they predicted the intended targets.

Conclusion

By definition OOTW activities are not war activities and the United States would have to be very careful when deciding to use CICBMs in peacetime. A clear set of guidelines, such as those proposed above, would have to be developed that describe the kinds of targets and

circumstances that would warrant CICBMs. Generally CICBMs should only be used for high payoff targets, in heavily defended areas, to reduce risk, for quick reaction, or to avoid overflight problems. In contrast, CICBMs should not be used for the close fight, when other assets are better suited (e.g. artillery or close air support aircraft), or to evoke terror.

OOTW doctrine and roles for military forces are still emerging. Army FM 100-5 lists thirteen different OOTW activities. Of those thirteen activities, nine could or would involve violence. The CICBM could conceivably be used in six of those violent activities. They are: show of force, humanitarian assistance and disaster relief, arms control, combating terrorism, peace enforcement, and attacks and raids.

Using the CICBM, could eliminate many of the problems planners now experience when planning an attack. CICBMs are not affected by the time of day, weather, intelligence leaks, fatigue, or overflight restrictions. They do not expose American forces to hostilities nor do they require ship or aircraft support.

The CICBM has a role in OOTW. It is, as Lieutenant Colonel John London called it back in the summer of 1993 "the ultimate standoff weapon."

CHAPTER FOUR

THE ROLE OF CONVENTIONAL INTERCONTINENTAL BALLISTIC MISSILES IN FIGHTING A MAJOR REGIONAL CONFLICT

Major regional conflicts (MRC) are the near-term strategy of the future. The United States military is expending much time and effort deciding how to best prepare for, fight, and win an MRC. To understand how the CICBM would contribute to the war effort, one must first understand what an MRC is and how the military intends to fight one. Then, given the CICBM's attributes, especially those unique to warfighting, one must determine if CICBMs could significantly contribute to the fight. As a backdrop for the discussion, this paper will use the Gulf War, as a recent example of an MRC, and the Korean peninsula, as a site of a possible future MRC.

Major Regional Conflict

According to the 1993 Bottom-Up Review conducted by the Department of Defense to "restructure our military forces for a new era," the United States had long prepared to fight "the numerically superior Soviet forces in Europe, the Far East, and Southwest Asia."[1] That was the dominant theme during the Cold War. Now the United States faces a less definable threat: hostile regional powers. The very existence of the United States is no longer threatened; its national interests are. Unfortunately, national interests are as difficult to pinpoint as the new threat. National interests are general, far

reaching, and redefined or interpreted by each presidential administration.

An MRC occurs when regional deterrence fails and a regional power becomes an aggressor. The best and most recent example of an MRC is the Gulf War. The region was Southwest Asia. Iraq was the aggressor. The national interests at stake were the right of a state to self-govern, the safety of Americans abroad, and free navigation and flow of oil from the Gulf Region.[2]

A potential, future MRC is a conflict between South Korea and North Korea. In 1953, an armistice was signed that halted the Korean war. That armistice remains the only peace agreement between North and South Korea. A full peace was never completed. Now, the two opposing nations stand watch over each other under an increasingly uncertain, 41-year-old cease fire.[3]

The threat of regional aggression is difficult to pinpoint. Many nations are dubious. Nefarious rulers cloak themselves in lies and deceit and even more nefarious would-be rulers eagerly wait in the wings for an opportunity. Only countries with the soundest institutions, the strongest economies, or the most profound commitment to human rights can be relied on as regional stabilizers. The uncertainty demands a new quick reaction military strategy.

Defense Strategy

One of the purposes of the Bottom-Up Review was to define a new strategy to counter the emerging dangers of the post-Cold War era. Specifically, the review set out to "devise a U.S. defense strategy to protect and advance our interests in this new period."[4] The results

were published in the final report released to the public in September 1993.[5]

The final Bottom-Up Review report presented a coherent strategy to fight not one, but two nearly-simultaneous MRCs. The strategy dealt with the reality of today's world: (1) the military was shrinking, yet national interests were enlarging; and (2) the United States no longer had the resources to preposition thousands of men and machines in every potential trouble spot around the world. The proposed strategy called for four phases of combat operations for fighting an MRC.

The four phases divide MRC operations into manageable chunks. They differ from previous post-World War Two plans in that they place less emphasis on forward presence and more emphasis on force projection. Also, the strategy is designed to apply to any regional conflict, not just known trouble spots. CICBMs could have a role in all the first three phases.

Four Phases of Combat Operations

Phase One: Halt the Invasion

The first step in dealing with an MRC is to stop the initial invasion. The primary objective is to "minimize the territory and the critical facilities that an invader can capture."[6] Quick reaction is essential to limiting the aggressor's success; time is critical. The more success aggressors achieve in Phase One, the more effort required to reverse it in Phases Two and Three.

The first line of defense must come from the country being attacked, with the United States' assisting as much as possible. The

major tasks and required forces for the United States military in Phase One are:

> Help allied forces establish a viable defense that halts enemy ground forces before they can achieve critical objectives.
>
> Delay, disrupt, and destroy enemy ground forces and damage the roads along which they are moving, in order to halt the attack. U.S. attacks would be mounted by a combination of land- and seabased strike aircraft, heavy bombers, long range tactical missiles, ground maneuver forces with anti-armor capabilities, and special operations forces.
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> Protect friendly forces and rear-area assets from attack by aircraft or cruise and ballistic missiles, using land- and seabased aircraft, ground- and seabased surface-to-air missiles, and special operations forces.
>
> Destroy high value targets, such as weapons of mass destruction, and degrade the enemy's ability to prosecute military operations through attacks focused on his central command, control, and communications facilities. For such attacks, we would rely heavily on long-range bombers, land- and seabased strike aircraft, cruise missiles, and special operations forces.
>
> Establish maritime superiority, using naval task forces with mine countermeasure ships, in order to ensure access to ports and sea lines of communications, and as a precondition for amphibious assaults.[7]

Phase Two: Build Up U.S. Combat Power While Reducing the Enemy's

The second phase of MRC operations is to build up power in the region after the invasion has been halted. Phase Two is designed to alter the region's combat ratio in favor of the ally and the United States. Enough combat power is needed to mount a successful counter attack.

Part of altering the combat power ratio is reducing the aggressor's combat power. This reduction would be the result of sustained attacks against the enemy in preparation for the counteroffensive. The emphasis of attacks would be on isolating and destroying enemy ground forces and on destroying stocks and military-related deep targets. Attacks would be "supplemented with direct and

indirect missile and artillery fire from ground, air, and sea forces."[8] The 40-day air offensive during the Gulf War just prior to the ground offensive is an example.

Phase Three: Defeat the Enemy

Phase Three is the counteroffensive. It consists primarily of moving ground forces against the enemy to regain territory and recapture facilities. The counteroffensive could also include destroying enemy forces and war-making capabilities to eliminate them as potential future threats in the region. The primary forces are mobile armored, mechanized, and air assault units. They would be supported by air power, special operations, and land- and sea-based fire support

Phase Four: Provide Post War Stability

Phase Four is an after action cleanup. It involves repatriating prisoners, occupying enemy territory, and ensuring agreement compliance. The forces would be a small component of joint forces from Phase Three remaining behind in theater.

CICBM Attributes

In warfighting, the CICBM has much to offer. As already discussed, CICBMs offer worldwide range, quick reaction time (30 to 90 minutes from notification to impact), assured penetration of enemy air defenses, and no overflight of foreign airspace. They are unmanned. The payload is flexible and can vary according to the mission. CICBMs can be used day or night in any weather.

The arguments developed in Chapters Two and Three for using the CICBMs to augment or replace other weapon systems now tasked with

destroying heavily defended, high value targets also apply when fighting an MRC. There is no need to repeat them. CICBMs would be outstanding long-range, standoff weapons.

However, a war scenario adds new opportunities for which the CICBM is well suited. Those opportunities are the need for rapid deployment in Phase One, corps support requirements on the battlefield, and the effects of the battlefield environment.

Instant Deployment

The CICBM is "deployed." With CICBMs emplaced on the east and west coasts of the United States, they are where they need to be to support any region in the world. Neither the weapon nor the support infrastructure must be moved to a theater. As a result, CICBMs need no airlift or sealift support. This may seem elementary, but the significance is not.

Lift assets will be stretched thin for one MRC, let alone two nearly-simultaneous MRCs. In March 1994, General Joseph P. Hoar, Commander US Central Command, told Congress that "airlift in this country is broken right now. I'm not sure it's workable for one major regional contingency."[9] Even so, debate continues over whether or not the Air Force will receive the desperately needed C-17 airlifters in sufficient quantities. Sealift is also not fully capable and in need of enhancements. As a result, anything that does not require airlift support in Phase One is a big plus.

Corps Support

Nations around the world are employing and developing short and intermediate-range ballistic missiles. According to Jane's Defence Weekly in April 1994, 32 different countries employ about 18 different types of short-range ballistic missiles for a total of around 8,800 missiles. An additional eleven are in development. Twelve countries employ fifteen different intermediate-range ballistic missiles for a total of approximately 2000 missiles. Thirteen new intermediate-range missile are in development.[10] All this activity clearly demonstrates that most militaries, including the United States, consider theater missiles exceptional warfighting weapons.

Surface-to-surface missiles are included in corps fire support as part of field artillery.[11] Dr. David Jablonski, Professor of National Security at the United States Army War College, recently posed the question:

> If, for example, US forces in the future require theater ballistic missile support in Southwest Asia, why send such missiles when ICBMs with conventional warheads that will soon approach accuracies of near zero circular error probable, can do the job without tying up strategic lift.[12]

That is an excellent question. The United States Army does see a need for theater ballistic missiles. It recently purchased the Army Tactical Missile System (ATACMS), a system which began life as the "Corps Support Weapons System."[13]

ATACMS is the Army's newest theater missile. Its payload is 950 antipersonnel/antimateriel bomblets. ATACMS are launched from modified armored vehicles originally designed for the Army's Multiple Launch Rocket System. Each modified vehicle can carry two ATACMS missiles.[14]

CICBM warheads could carry antipersonnel/antimateriel bomblets and achieve the similar affects to ATACMS. CICBMs would be able to provide ATACMS-like support during the early hours of a battle when theater missiles are not yet available. The ATACMS missiles, vehicles, personnel, and support elements must all be transported to the theater. Moving a single ATACMS battery requires five C-5 Galaxy or thirteen C-130 Hercules airlifters.[15]

CICBMs have the additional advantage of being out of range of enemy forces. ATACMS launchers in theater are vulnerable to enemy long-range systems. One lesson from military history is that armies that can delivery accurate, effective fire at a longer range have a distinct advantage over the enemy. Early in the American Civil War, the rifled musket had a longer effective range than smooth-bore artillery. Until cannons were rifled, artillery was ineffective as infantrymen could shoot the previously immune cannoneers. In the case of CICBMs, the range is so long they are not even affected by the theater battlefield environment.

Battlefield Environment

The ability to operate CICBMs is not affected by the battlefield environment. A chemical attack deep in a corps support area could, temporarily at least, paralyze ATACMS operations. A chemical environment can reduce weapons systems' effectiveness up to 60 percent. Operations are disrupted. Performance is degraded. Lost momentum may never be regained.[16] A chemical attack on selected airfields could likewise limit the role of F-117 and other fighter-bomber operations or at least reduce available sorties.

One of the current challenges for the Defense Nuclear Agency, according to the Secretary of Defense, is weapons operability. "Success on tomorrow's battlefield may require military systems which can function during and after exposure to nuclear, chemical, and biological elements."[17] Obviously, CICBMs can function during and after such attacks in the theater.

CICBMs are not completely invulnerable. They would be subject to terrorist attacks in the United States. The terrorist attacks against the World Trade Center in New York and the Alfred P. Murrah Federal Building in Oklahoma are examples of the damage that can be caused by simple, albeit large, homemade bombs. CICBM bases would have to be protected. The risk, however, would be no greater than the risk to B-2 bombers station at Whiteman Air Force Base, Missouri.

CICBMs in the Fight

Given the above CICBM attributes and the four-phased defense strategy, CICBMs have a lot to offer. They could be used in the first three phases of combat operations. The following analyses of potential CICBM contributions in a Gulf War scenario and in a Korean scenario assumes CICBMs and B-2 bombers are, or were, available and fully functional.

Gulf War Scenario

Phase One: Halt the Invasion

The United States' participation in Phase One of the Gulf War is debatable. No one helped Kuwait establish a defense. The main Iraqi objectives in Kuwait were secured within five hours of Iraqi units

crossing the border. Though the United States had months of warning (albeit mitigated by intelligence analysis that predicted Iraq would not attack), they were either unable or unwilling to help halt the invasion of Kuwait once it started.

The Operations Plan in effect (OPLAN 1002) at the time called for the defense of Saudi Arabia and Kuwait. In that sense, i.e., assuming Saddam Hussein intended to invade Saudi Arabia, the effect of United States combat power was felt in phase one. The United States militarily deterred an invasion of Saudi Arabia. At no time, however, did the United States act to forcibly halt the Iraqi onslaught. Unless one is convinced that Iraq intended to invade Saudi Arabia, the United States had no Phase One role for Kuwait.

According to the Bottom-up Review, there are five tasks to be accomplished in Phase One of a combat operation. CICBMs could contribute to three. CICBMs could help establish a defense that halts enemy ground forces by targeting key bridges or key terrain features. They could delay, disrupt, and destroy enemy ground forces by damaging the roads and bridges along which they are moving. CICBMs also have the potential to destroy high-value targets and degrade the enemy's ability to prosecute military operations through attacks focused on his central command, control, and communications facilities.

The two tasks in which CICBMs would be of no or little assistance are protecting friendly forces and rear-area assets from attack and establishing maritime superiority. Rear area missions involve the same difficulties as the close fight: rapid troop movement, not knowing precise latitude and longitude coordinates, and the

potential costs of a miss. CICBMs could assist maritime superiority only by targeting stationary ships in port.

If the United States had been willing to commit United States forces during Kuwait's five-hour defense, the only system that could have assisted Kuwaiti forces on the ground would have been the CICBMs. Aircraft, unless on strip alert (manned, fueled, and loaded on the runway) could not have responded quickly enough.

Consider also the difference in the Gulf War scenario, if after a brief pause, Iraq continued their offensive into Saudi Arabia. King Fahd would have invited western forces into Saudi Arabia and appointed General HRH Prince Khaled Bin Sultan as Commander, Joint Forces (both of which King Fahd did anyway in a matter of days). General Khaled Bin Sultan assessed the situation as follows:

> In the North, where we anticipated no danger, [Iraq, thought at the time to be an ally, was to the North] we had no more than two brigades. But the evidence from US satellites was overwhelming: Saddam could, if he wished, invade Saudi Arabia. Had he tried, in those nerve-shattering days of August and September 1990, there was little we could have done to stop him, and dislodging him from the Eastern Province would have been a far more daunting task than Desert Storm.[18]

According to General Horner, the Joint Force Air Component Commander during Desert Storm, not until about mid-September, did they have "sufficient ground forces to defend Saudi Arabia from any kind of attack."[19] Regardless, General Khaled Bin Sultan cited three reasons for limited optimism: he felt his Air Force could hold Iraq at bay until help arrived; the vast desert between Kuwait and Riyadh would have made the Iraqi forces vulnerable to air attacks; and Saddam Hussein was an incompetent military commander.[20]

United States forces available to help Saudi Arabia establish a defense early on would have been very limited. Not until three days after the initial attack into Kuwait was the aircraft carrier USS Independence within range to conduct land strikes. Tomahawk Land Attack Missiles (TLAM) were with the carrier battle group.

B-2 bombers would have offered significant firepower. However, air superiority would have been as yet undetermined and that battle, being a top priority, would have tied up most, if not all, Navy aircraft. Whether or not the United States would send B-2 bombers, or any other bomber for that matter, into a theater without assured air superiority is questionable. In fact, during the first 48 hours of Desert Storm, despite the insistence of General Norman Schwarzkopf, Commander, United States Central Command, the Air Force did not use B-52 bombers to strike the Iraqi Republican Guard, because of the surface-to-air missile threat.[21]

CICBMs would have been available immediately to assist the defense, and targets would have already been determined. One day prior to the actual Iraqi advance into Kuwait, General Schwarzkopf briefed the Secretary of Defense and the Joint Chiefs of Staff on detailed plans for air strikes and sea strikes against Iraq. The plans included high-value targets, such as military headquarters, power plants and factories that General Schwarzkopf thought could be struck quickly with air and sea power (just how quickly is not specified).[22]

If Iraq had attacked Saudi Arabia, the CICBM corps support attributes would have been perfect. Employed like theater ballistic missiles, CICBMs could have added significant fire power in slowing the

enemy advance--even during the first hours. Neither American light forces nor Saudi Forces would have had theater ballistic missile support on their own. Light infantry do not carry theater missiles and Saudi Arabia did not have any.[23]

Phase Two: Build Up Combat Power

Included in Phase Two with the buildup of military forces in theater, is reducing the enemy's capacity to fight. The 40-day air war that preceded the ground offensive in the Gulf War was part of Phase Two. General Schwarzkopf wanted air superiority and a 50 percent reduction in the Iraqi combat power before any ground campaign would begin. Much of the reduction in Iraqi combat power came from precision guided weapons.

The need for precision-guided weapons is well documented. General John Loh, Commander Air Combat Command, said last year that all-weather precision-guided munitions "will give us enormous leverage in enabling us to take out high-value targets in numbers that we'd need to take out early on." General Loh went on to say "we know precision guided weapons are important, but are we buying enough?"[24] General Loh was not talking about CICBMs, but he could have been.

The CICBM role in Phase Two is the precision guided munitions role during an air campaign. As laid out in Chapter Two, CICBMs could be assigned targets too heavily defended to risk a manned system, too difficult to reach due to overflight restrictions, or too distant to reach without refueling over enemy airspace.

Phase Three: Defeat the Enemy

CICBMs could support the Phase Three counteroffensive in a corps support role. Admittedly, before Phase Three began sufficient combat power would have been brought into theater. The corps support role for CICBMs would naturally be reduced. Theater ballistic missiles would presumably do the bulk of the long-range work.

ATACMS were used during the Gulf War with success. The Gulf War theater inventory of ATACMS was 105 missiles, but only 30 were fired. They were launched against Scud missile sites, air defense sites, logistical bases, tactical bridges, and gun and rocket artillery bases. According to Army magazine in January 1992, "at ranges of 85 kilometers--well inside its capability--ATACMS destroyed or rendered inoperable every target engaged."[25]

But, when is enough ballistic missiles in theater really enough? International Defense Review reported that most ATACMS were held in reserve to counter an anticipated counterattack by the Iraqi Republican Guard. The United States could have held CICBMs in reserve and relieved the restriction on ATACMS. Commanders could have used ATACMS more freely until, of course, the battlefield environment made corps fire support too difficult or ineffective.

A major threat against allied forces in the Gulf War was chemical weapons. By the Gulf War, Iraq was the third world's largest producer of chemical weapons.[26] Iraq had enjoyed success with chemical weapons during the Iraq/Iran war a few years earlier. In a large attack, involving the Republican Guard and another regular corps against Iran, Iraq used chemical weapons delivered by aircraft and artillery.

The Iranians never recovered from the initial attack and were routed. Chemicals created casualties and disrupted Iranian command and operations. While chemicals were not the sole reason for the victory, they definitely contributed to the success of the Republican Guard, Iraqi 7th Corps, and Iraq's two amphibious units who completed the planned five day offensive in just 35 hours.[27]

United States forces are well prepared and well trained to fight in a chemical environment. Even so, chemicals would have slowed personnel and contaminated equipment. The effects are psychological as well as physical. Fear and fatigue each take a toll.[28] CICBMs would be one weapons system not degraded by chemicals on the battlefield. They could accomplish their mission without interruption.

Some might argue that the use of United States-based weapons in a war would make the continental United States a target for attack--attacks that could include chemical weapons. This may be true, but no more so then launching strategic bombers from United States locations.

Korean Peninsula Scenario

Phase One: Halt the Invasion

In contrast to the Gulf War, Phase One would definitely take place in a Korean scenario. The United States is already committed to repelling a North Korean invasion in to South Korea. United States air, sea, and ground forces are in theater. American and South Korean forces are under the operational control of one combined forces command.

Combined exercises in Korea are routine. According to General Robert W. RisCassi, Commander-in-Chief, Combined Forces Command:

> the only way to deal with these [the North Korean] challenges is through frequent exercises that stress our systems to see if they're working correctly. By concentrating on the Battlefield Operating Systems, we take a critical look at both the results of our systems and the decision apparatus that produces those results.[29]

CICBMs could be included in these exercises as part of the "fire power" battlefield operating system. The resolve to use CICBMs very early in the war could already be decided. Targets or target sets could be predetermined.

Phase Two: Build Up Combat power

Any Korean scenario would rely heavily on Phase Two, the buildup of combat power. North Korea has the fourth largest military in the world. Over 65 percent of its active forces are within 100 kilometers of the demilitarized zone in attack positions.[30] The North Koreans forces are double or more of the South Korean forces in almost every category.[31] The United States Army has only one division and the Air Force has only one wing in Korea. One of the keys to success against a North Korean attack would be the rapid augmentation of existing forces with United States forces from out of theater.[32]

CICBMs represent one form of augmentation that would be available immediately. They could be used to reduce the combat power of the North Korean forces. Targets could be preplanned against the seven attack corridors that are expected to canalize attacking North Korean forces.[33]

Phase Three: Defeat the Enemy

The North Korean chemical threat is formidable. North Korea conducted 630 chemical warfare exercises between 1980 and 1991. Even though the North Koreans declared they wanted Korea to be a nuclear

free, chemical free, peace zone, they continued to place considerable emphasis on developing chemical weapons.[34]

CICBMs offer two advantages to the combined forces command. First, they could be targeted against North Korea's six chemical storage locations and eight production facilities. And second, CICBMs operate from outside the reach of enemy chemical weapons.

Other MRC Strategies

Third Wave Warfare

Colonel Owen Jensen, Vice Commander, Fourteenth Air Force wrote an article recently in Airpower Journal where he proposed new principles for fighting an information or Third Wave War. They are intended to replace the old concepts of defense and offense. He divides the new principles among four categories:

1) Thicken the fog of war for our enemies.
2) Lift the fog of war for ourselves to create a transparent battlefield.
3) Ensure that our enemies can't turn these tables on us
4) Always fight the information war with full intensity.[35]

CICBMs would be useful in the first of these categories: thicken the fog of war for our enemies. That category has two principles. One is decapitation and the other is sensor primacy.

Decapitation is severing the head from the body. In this case, it is separating command and control from the forces. Decision making nodes, such as senior level command posts, should be targeted at every level. Obviously, the more critical the node, the more heavily defended it will be. CICBMs would allow the United States to destroy critical decision-making nodes without regard to enemy air defenses at the first onset of war.[36]

The second principle, sensor primacy, seeks to lay bare enemy defenses by destroying his ability to see and hear on the battlefield. Here again the CICBM could attack with impunity any active or passive sensor for which the coordinates are known.[37]

Another important principle, which happens to fall in category four, above, is that of hierarchy. This principle states that Third Wave countries should always fight Third Wave wars. This is true even if opposed by a First or Second Wave enemy. Even the most primitive armies need intelligence and communications.[38] The Gulf War was a good example.

The Gulf War was actually a dual war. The Iraqi army was clearly a Second Wave army with its huge numbers of materiel and men. Thus, the United States fought both Second Wave and a Third Wave war. B-52 bombers conducted high altitude bombing attacks on Iraqi forces in a display of brute force and mass destruction. At the same time, however, the United States used cruise missiles and laser-guided bombs to destroy pinpoint targets to decapitate the enemy.[39]

Strategic Paralysis

Strategic Paralysis is a proposed strategy for the conduct of combat operations. It was proposed by an Air Force Major Jason Barlow as an "independent strategy for the application of air power."[40] It is a strategy option suitable for Phase One or Phase Three of an MRC operation.

Strategic paralysis calls for precise aerial attacks against an enemy's most vital targets, his national elements of value (NEV). The idea is to paralyze the enemy's ability to continue the conflict, to

break his will to fight. Thus, the conflict is ended with the lowest cost to life and machine.[41]

NEVs are the sources of strength for a country. There are seven suggested NEVs: leadership, industry, armed forces, population, transportation, communications, and alliances. According to strategic paralysis, the elimination of one destabilizes the others. The neutralization of the correct combination induces paralysis.[42]

Strategic paralysis relies on the being able to attain air superiority and being able to deliver munitions with impunity. The implementor of strategic paralysis must be able to deliver the necessary munitions on any target at any time.[43] As already discussed in preceding chapters, attacking any target at any time is a primary attribute of CICBMs.

Strategic paralysis also relies on the enemy having a vulnerable infrastructure and on the United States being able to locate vital enemy targets.[44] These restrictions serve more to determine if strategic paralysis is a logical tactic in a given scenario. One would not, for example, attempt to use strategic paralysis to bring Somalia to its knees. If, however, the enemy has a vulnerable infrastructure and the United States can identify the critical targets, then CICBMs would be a significant contributor to the strategy.

Two Nearly Simultaneous MRCs

United States policy is to maintain the forces to fight and win two, nearly simultaneous MRCs. The Bottom-Up Review cited two reasons for this policy, the first being related to deterrence. The commitment of United States force in one theater must not leave an opening in

another theater where the United States is not prepared to defend its national interests. The second reason is to ensure the combat power of the United States is large enough to defeat a regional power who can field a larger than expected threat, a cushion, in other words, against unpredictable threats in the post-cold War environment.[45]

When one considers how to fight two nearly simultaneous MRCs, the primary question is how to bring assets that are already committed to one theater, to bear in a second theater. Ideally, the military would have twice the resources needed for one MRC and would therefore be able to fight two MRCs. If that were the case, the policy would simply be to have the capability to fight two MRCs. The words nearly simultaneous are needed because some sealift, airlift, and air attack assets required for the first MRC would also be needed for the second MRC.

Several articles have been published in various periodicals showing that current or projected force levels do not provide adequate lift, strategic bombers, fighters, ships, troops, and so on to support two MRCs. Those articles do not, however, enhance the argument for CICBMs. Any money used to develop, build, and maintain CICBMs could also be used to build and maintain more airplanes, more ships, or more troops to ease the shortages created when fighting two nearly simultaneous MRCs.

But, a scenario involving two nearly simultaneous MRCs highlights the superiority of CICBMs. They are the most flexible of weapon systems. If one is lucky, CICBMs on the West Coast would be best for one MRC while East Coast CICBMs are best suited for the second. But

even if that is not the case, CICBMs already targeted to support the first MRC could easily be retargeted to support the second MRC. In fact, multiple targets could be stored in the on-board missile guidance computer, so the missiles could support both MRCs simultaneously.

Conclusion

Weapon systems are designed to be used in combat to win wars in the defense of United States national interests. Fighting an MRC is where the "rubber meets the road" for a military weapon system.

CICBMs have several strengths that are unique to their war fighting role. For one, they are always deployed. At no time are they out of range for a theater and at no time do they tie up strategic lift capability. Also, CICBMs can provide support similar to that of theater ballistic missiles. As testimony to their value, thousands of theater missiles are employed throughout the world. CICBMs provide that value without being deployed, or at least provide a backup for theater missiles so theater assets can be used effectively and do not have to be held in reserve for future contingencies. Finally, CICBMs are not affected by the battlefield environment. Enemy use of chemical or biological weapons does not reduce CICBM effectiveness or operations tempo.

United States strategy is to fight an MRC in four phases. Phase One is halting the invasion. Phase Two is building up forces in the region and reducing the enemy's combat power. Phase Three is defeating the enemy. And, Phase Four is providing for post-war stability. As this study has demonstrated, CICBMs have a potential role in the first three phases.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

This study set out to determine if there is a role for conventionally armed, land-based ICBMs in United States military strategy. The first step was to review the current environment in an effort to understand why this question deserves attention now. The review looked at the environment, new strategy imperatives, and new technologies that make Conventional ICBMs (CICBM) relevant. The second step was to determine if the CICBMs has a role in specific aspects of military strategy.

Summary

The first and probably most important impetus to this study was the fact that CICBMs were possible. A conventional warhead requires much improved accuracy over nuclear weapons and that accuracy was not achievable without recent advancements in precision guidance, especially global positioning satellite systems.

The environment was also catalyst to CICBM consideration: threats changed and defense dollars tightened. The Cold War protagonists warmed up and melted old barriers to cooperation and peace. The regional powers rose up, suddenly free to exert their wills and eager to test their new influence. The threat to the United States' national interests became difficult to define and even more difficult to predict.

Defense money flowed easily when the threat was frighteningly clear, but dollars disappeared when the threat became hazy. Forward based forces were recalled to the United States proper to save money. The military planned to strike outward when necessary to meet a threat. Military units would be quickly deployed to any part of the world.

The last environmental change was new strategies that required global reach and down to earth costs. The military had to hold at risk any target around the world. They also needed to minimize costs, not only in terms of dollars, but in lives. Save lives meant reducing risk--expose the machine not the man.

Analysis

The second step in this study was to determine specific roles for which CICBMs would be well suited. Three areas where the military was actively engaged were considered: conventional deterrence, operations other than war (OOTW), and fighting major regional conflicts (MRC). A CICBM role in any area would mean a role in United States military strategy. The more areas where CICBMs had a role, the more substantial their contribution to overall strategy.

Conventional deterrence was examined first. Conventional deterrence results from a potential aggressors calculation of the costs of acting versus the benefits of acting. To determine the costs the potential aggressor evaluates the threat. To evaluate the threat he assesses the enemy's (in this case the deterrer's) combat power, will to use it, and ability to bring force to bear. The aggressor then compares the costs to the potential benefits of acting. If the benefits outweigh

the costs, he acts. If the costs are greater than the benefits, he remains deterred.

This paper concluded that CICBMs contribute greatly to the deterrent posture of the United States. They significantly enhance the United States' ability to bring force to bear on the enemy. CICBMs would have worldwide range, quick reaction, and accuracy. They could strike with tremendous speed, do not overfly other countries, and are virtually indefensible.

Today, the United States risks a deterrence failure based on its inability to quickly bring force to bear. The United States had six months to build up forces preparing for the Gulf War, while the Iraqis paused. The next regional aggressor may not hesitate. CICBMs would clearly contribute to and therefore have a role to play in conventional deterrence.

The OOTW activities increasingly involve military forces. By definition OOTW activities are not war, yet they may easily require violence. Army doctrine lists thirteen OOTW activities and of those, nine could or would involve deadly force.

Using the CICBM in violent OOTW activities, would eliminate many of the problems planners now experience when planning an attack. CICBMs are not affected by the time of day, weather, intelligence leaks, fatigue, or overflight restrictions. They do not expose American forces to hostilities nor do they require ship or aircraft support.

As a result, this study concluded that CICBMs could conceivably be used in six of the nine potentially violent OOTW activities. Those

six are show of force, humanitarian relief and disaster assistance, arms control, combating terrorism, peace enforcement, and attacks and raids.

Since OOTW activities take place in peacetime, however, this study recommended the military establish guidelines to prescribe the kinds of targets and circumstances that would warrant CICBMs. The guidelines herein proposed include using CICBMs only for high-payoff targets, in heavily defended areas, to reduce risk, for quick reaction, or to avoid overflight problems. Proposed restrictions would bar CICBM use in the close-in battle, when other assets are better suited, or merely to evoke terror.

The last potential role explored for CICBMs was fighting MRCs. The United States strategy is to fight MRCs in four phases. First, halt the invasion. Then, build up forces in the region and reduce the enemy's combat power. Third, defeat the enemy. Finally, provide for post-war stability. CICBMs have a potential role in the first three phases.

CICBMs would contribute to fighting an MRC in several ways. The precision-guided capabilities that make CICBMs excellent for deterrence and OOTW are equally applicable to MRCs. However, in fighting an MRC, the CICBM offers several other strengths. CICBMs would always be deployed, never be out of range, and never require strategic lift. CICBMs could provide support similar to that of theater ballistic missiles which are embraced worldwide. Lastly, CICBMs are not affected by the battlefield environment, that is enemy theater systems. Specifically, enemy weapons of mass destruction would not reduce the effectiveness or operations tempo of CICBMs.

The necessary conclusion (as dictated by the methodology described in Chapter One) is that CICBMs have a role in United States military strategy. This study shows that CICBMs have a role in conventional deterrence, OOTW, and fighting MRCs. While a role in any one military application would be enough to argue CICBMs have a valuable role, the fact that they would have a role in each of these three areas makes the potential CICBM contribution significant.

Recommended Areas of Further Study

This study took the first step by finding CICBMs could have a role in United States military strategy. But, there are many more questions to be answered. Each one deserves serious attention.

First and foremost is the problem of existing treaties. The strategic arms reduction treaties regulate the number of ICBMs that the United States can have. They do not, however, distinguish between conventional and nuclear ICBMs. There was no need to do so at the time. One could reasonable assert that the intent of the treaty was to limit nuclear ICBMs and therefore does not apply to conventionally armed ICBMs any more than it applies to satellite launch vehicles. This is an essential step to paving the way for CICBMs.

Next is the question of weapon design. Should CICBMs be large or small? Should they be liquid or solid fuel? What size payload is best? What types of payloads should they carry? Answers to these questions are closely tied to the next area of concern: readiness.

Readiness plays an important role in how CICBM can be employed. In what state of readiness should the CICBMs be maintained? Should they be kept on constant alert for minimum reaction time? Should they be

generated to alert status in times of higher tension. Should part of the force be on alert while remaining missiles are generated when needed? How many CICBMs should the military be able to launch in a single salvo? That last question leads to basing options.

Basing options for the CICBM include location and configuration. Are Florida and California the best launch sites? Would Hawaii offer added opportunity? Is there a single launch site that could allow worldwide coverage? What sites are more defensible from enemy forces or terrorist activity? Configuration options include above ground platforms and below ground silos. Which is better? How quickly could launchers be reused? How many missiles would be needed at each launch site?

After the above questions are answered, one must evaluate cost effectiveness. Or, perhaps cost effectiveness will drive the answers to the above questions. At any rate, is the CICBM cost effective compared to other weapons systems? Every system has its share of direct and indirect cost. When comparing weapon systems, costs should be estimated over the entire lifetime of the system. TLAMs require ships or boats, both of which require self-protection. All have to be maintained and manned. Manned aircraft must also be maintained and manned. Aircraft require tanker support which in turn need to be based, maintained, and manned. Both ships and aircraft are used on a regular basis for training and routine patrols, and so on.

Final Word

The key to the CICBM and what sets it apart from existing systems is the delivery vehicle, how the bomb gets to the target. The

United States military delivers bombs to the enemy on tactical fighters, strategic bombers, sea launched cruise missiles, air-launched cruise missiles, theater ballistic missiles, etc. Some have long range, some have great accuracy, some are easily deployed, some are forward projected. Some are low and slow. Some are high and fast. None are perfect solutions to all military problems. Each system has a niche and the same is true for CICBMs.

CICBMs are not a revolution; they are an evolution. The force delivered upon the enemy is not new. The CICBM is a combination of existing bombs with existing delivery vehicles. The CICBM combination, however, results in an extraordinary new weapon system with enormous potential.

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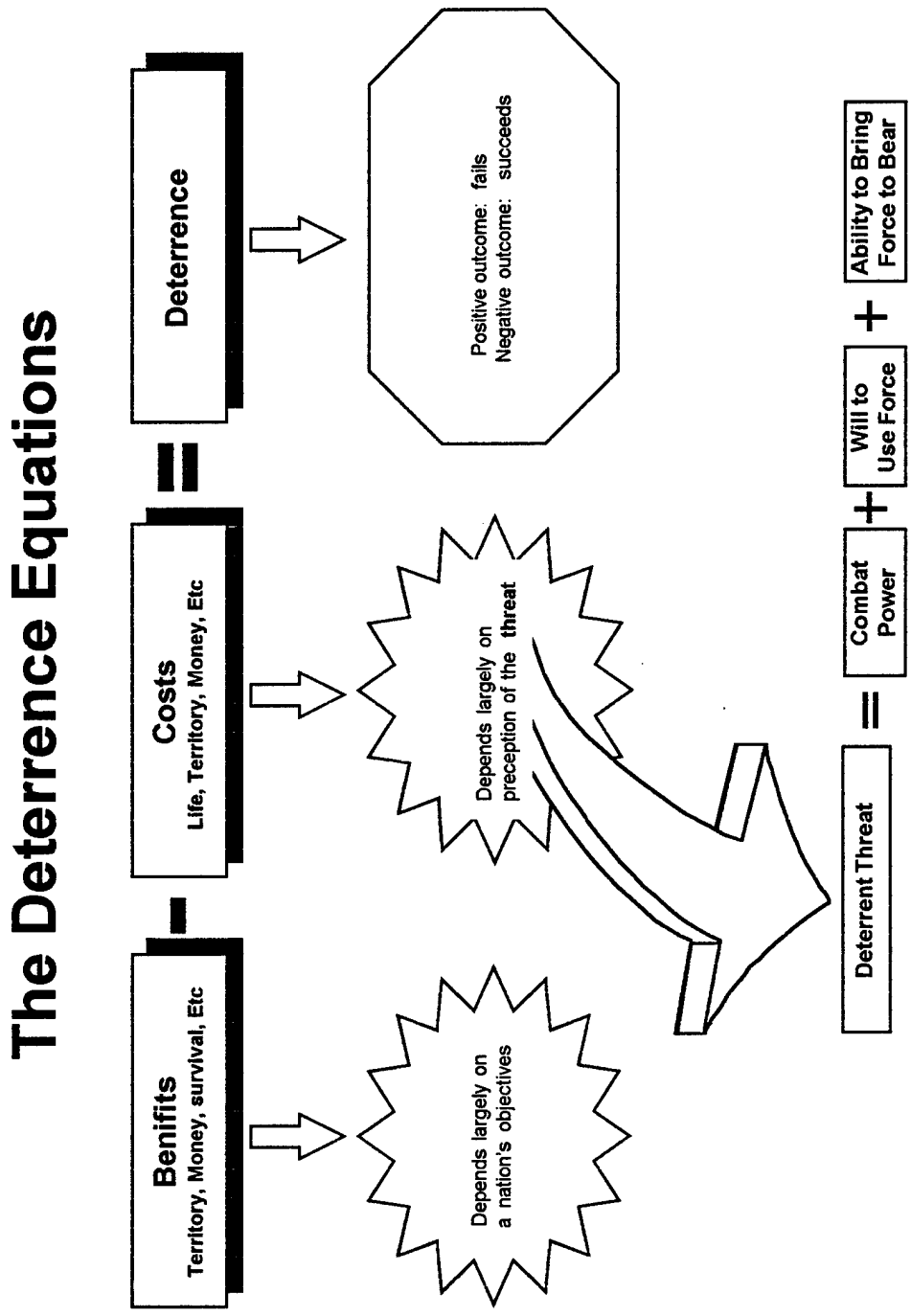

Figure. The Deterrent Equations

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